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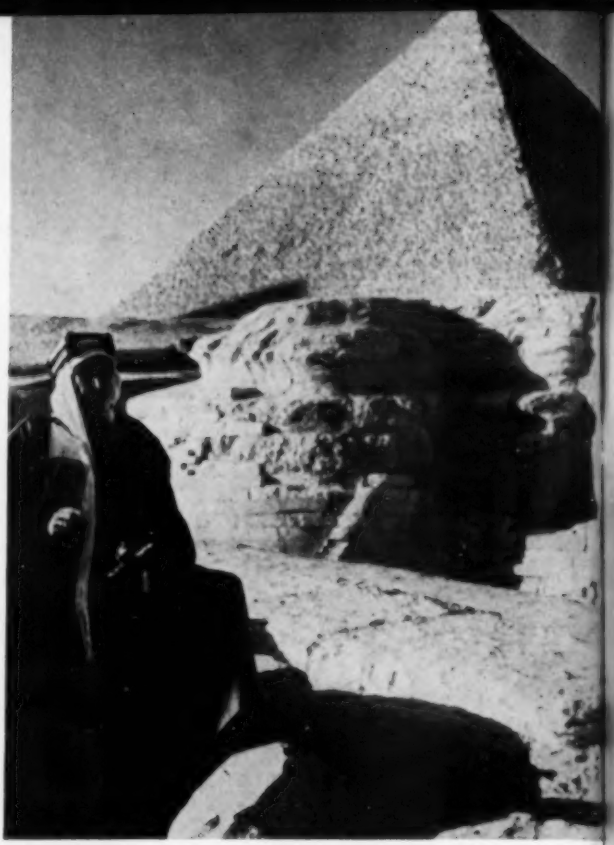
Travail in Egypt

by GEORGE H. T. KIMBLE

Photographs by the author

Maps by courtesy of the American Geographical Society.

IT IS the misfortune of some countries to have too much history. Egypt has more history than any historian or archaeologist can encompass — at least 6,000 years of it, and much of it still on display. Indeed it is doubtful if there is any country in the world which has had a more "monumental" past, or done as much to perpetuate it. Karnak, Luxor, Thebes, Memphis, Gizeh, Abydos, Edfu are known, and appreciated, wherever seasoned travellers consort, and are in a much better state of preservation than many of Egypt's modern buildings. There are times when one suspects that a good many Egyptians are more impressed by their ancient achievements than their modern responsibilities, though, it must be confessed that they are not alone in this. We Westerners have spent more money in Egypt on excavation than education, and, until a few years ago, were more intent on reconstructing her past than improving her present.



Great Pyramid of Gizeh. The ornamental sheik is unlike the local people, who are poor.

Such attitudes, while they may be scholarly enough, have tended to deflect attention from the important role Egypt is cast to play in the Middle East drama, and from the facts of life faced by her rapidly growing population. What are these facts?

In the first place, there is the fact that, geographically speaking, Egypt is a dependency of the Nile — it lives almost entirely upon "imported rainfall". Were it not for the summer monsoon rains in the Ethiopian highlands and the convectional rains of the upper Sudan and Uganda, there would be no Egypt, because there would be no Nile. At most there would be a narrow coastal fringe of scrub, narrower and scrubbier than it is in the neighbouring scorched lands of Libya and of even lower supporting value. No people in the world are more dependent on external sources of sustenance; in very truth, their life hangs by a thread — a thread that luckily has never broken, but one that could be weakened seriously by ill-disposed neighbours in the Sudan and East Africa. Accordingly, we

Egypt's focal position in the Middle East.

should not judge the Egyptians too harshly for their acquisitive interest in the Sudan. Canadians might feel the same way about America, and with less reason, were their neighbours to the south to have a "corner" on the Great Lakes water supply.

In the second place, and not surprisingly, it is a hungry country. More than 20,000,000 people live on the banks of the Nile in an area half the size of New Brunswick, giving a density of population of approximately 1,500 per square mile that is only exceeded in two or three parts of the world — the poorest at that. More significantly, from our point of view, the amount of cultivable land per person is less than one-half acre — almost as low as in Japan. With three out of every four of the population being dependent on the soil, it is no exaggeration to say that most Egyptians are born in poverty, raised in dearth, and live near the starvation line. My most vivid recollection of a banquet given by the Government of Egypt for a group of visiting scientists is not the food, which was delectable, but the mad rush to gather up the fragments by the waiters and their ragged friends who appeared, as if by magic, the moment the diners left their seats. Some of the more eager scavengers did not even wait for the diners to leave! A study of five sample villages, recently carried out by the Rockefeller Foundation for the Egyptian government, goes far toward explaining — and excusing — such table manners. Fifty-six per cent of the people were found to live on a diet of unleavened bread, skim milk, cheese, plus fresh vegetables once a week. Only six per cent got fresh vegetables and meat regularly.

Hunger, especially when it is juxtaposed against prodigal living, as is not uncommonly the case in Egypt, breeds discontent, the stuff of which rioting and rebellion are made, and of these Egypt has had, and continues to have, more than her share. But hunger breeds disease as well as discontent. In the Rockefeller study, already cited, the following shocking facts were disclosed. All the villagers examined by the medical team had amoebic dysentery, 92% had bilharzia, 89% had trachoma (an eye disease that can destroy sight), 64% had intestinal worms, 10% of those between 10 and 20 years of age had pellagra (a vitamin deficiency disease), over 6% suffered from syphilis, 6% were typhoid carriers, 2% had typhoid annually, and 2% had active pulmonary tuberculosis. Small wonder that the average life expectancy at birth is less than 20 years, or that about half the children die before the age of 5.

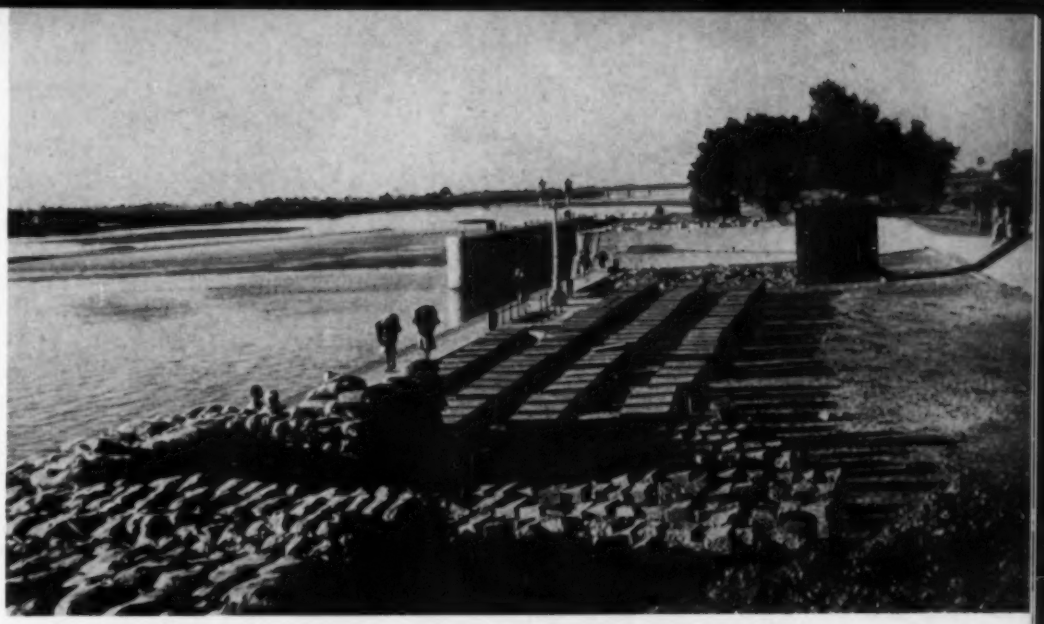
In the third place, it is a most accessible country. The Delta region, where most Egyptians live, is near the navel of the Old World; it commands the land bridge between Africa and Asia, the air lanes to East Africa and Southeast Asia, and the all-important sea route between Europe and the Orient. It lies midway between the eastern and western, the northern and

A great deal of the produce of Egypt still moves about the country by camel, but these camels spend most of their time carrying tourists round the Gizeh pyramids.

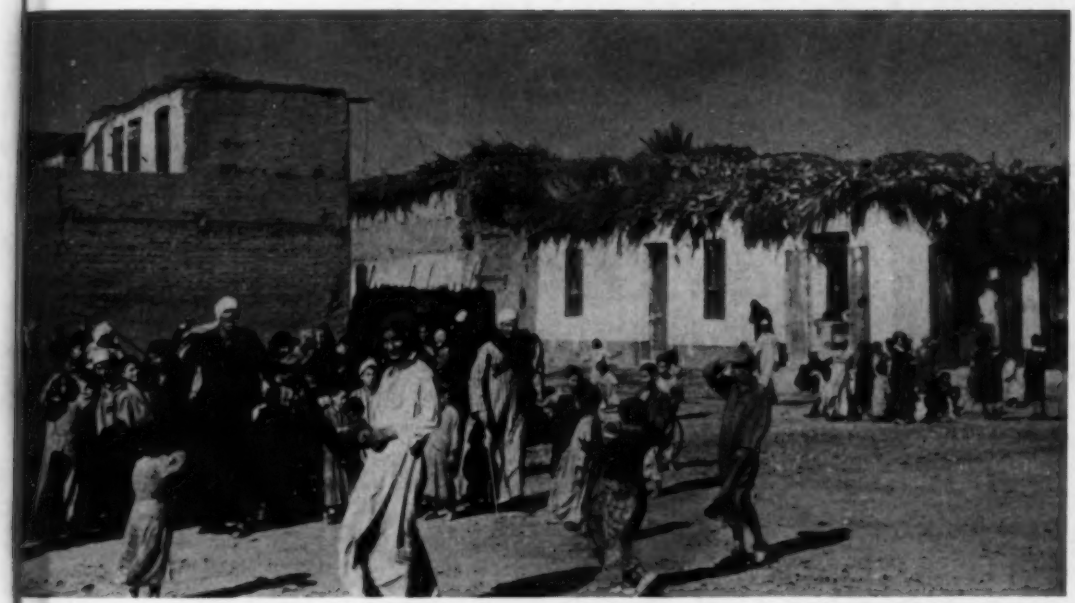
southern extremities of Islam and is, increasingly, the hub of Islamic culture. To Cairo's one-thousand-year-old El-Azhar University, come students from every Mohammedan centre in the world. (More than 2,500 of the students registered in October, 1950, were domiciled outside Egypt: 8 were from Afghanistan, 10 from Kurdistan, 22 from India, 52 from Indonesia, 114 from Ethiopia, 1,148 from the Sudan, and there were students from a dozen other countries as well.) Past Egypt's Mediterranean and Red Sea shores move the ships of more nations than do business in Canadian waters, and the Suez Canal does nearly three times as much business as the Panama Canal — five times as much as the Welland Canal. And because Egypt is accessible, it has always been difficult to keep people out. She has been invaded from north, south, east, and west, a score of times in antiquity — twice in the past ten years. Her frontiers provide no protection: desert sands have never been an obstacle to the Bedouin, and are no defence against tanks and aircraft. Her irrigation meadows, perennial in their bounty, have lured the hungry and the envious of many nations: Jacob may have been the first to send his children in search of Egyptian corn, but he certainly was not the last. And there have been numerous other times when, if not actually invaded, Egypt has been occupied by powers who believed it to be in their interests, and hers, to keep other people from occupying the country.

All of which has tended to give Egypt an outsize inferiority complex, to make her resentful of interference, and of all appearance of subordination to external authority. It has, furthermore, tended to encourage opportunism in politics, and to foster the present cult of "neutralism". Not that Egypt is above taking advice of foreigners, let alone incapable of setting her house in order. On the contrary (and here we take leave to chide some of our contemporaries who see only corruption, venality, and cynicism in Egyptian public life), there was never a time when so many Egyptians

The Nile Valley



The Nile continues to be the jugular vein of Egypt. Although the annual fluctuations of the river are not as important as they used to be, thanks to the barrages, everybody talks about them, as people do about the weather in this land.



Street scene in the village of El-Marg, one of many in which the Ministry of Social Welfare has recently established a community centre. Here infectious disease and infant mortality rates have dropped dramatically in the past three years.

A Nile boat approaching Mahomet Ali Barrage near Cairo. Wherever possible the Egyptians are increasing the capacity of the Nile barrages and strengthening their retaining walls.

One of the many minarets that rise above the Cairo skyline. The call to prayer from this city mosque is aided by loudspeakers.

were awake to the plight of their fellow-countrymen, and so determined to see it remedied. True, men of such mettle are still all too few, but their ranks are growing, and they can already point with satisfaction to some solid gains in the fields of agriculture, industry, and social welfare.

The casual visitor to Egypt almost invariably reports that the hand of time lies heavy on the land of Egypt — to the point of paralysis in that, even if new techniques were introduced, the *fellahin* would have neither the insight nor the inclination to adopt them. And he would be partly right, for superstition, ignorance, and inertia are a powerful trinity of obstacles to social progress in Egypt. But he would not be telling the full story. He would be ignoring the fact, among others, that the Egyptian government operates a number of experimental agricultural stations where the merits of systematic crop rotation, chemical fertilizer, and controlled water supply are being demonstrated in a "language" that even the most illiterate *fellah* can understand. Then, at more than 150 village centres scattered through the land, government technicians are daily winning new friends to the idea that it pays to select seed, to fight plant parasites, to grow crops that give the maximum food value, and, more difficult of inculcation but even more rewarding, that it pays to control the breeding of animals, and to house them hygienically. Where these centres have been established some quite remarkable economic gains have been registered. At El-Marg which I visited recently, truck farming is slowly ousting subsistence farming from its long-established ascendancy. With the proceeds of their valuable vegetable crops, the villagers are not only able to buy what additional foods they need, they also have cash in hand for clothes, household goods, and other domestic requirements. Indicative, too, of the range of interest of these centres, is the fact that in this same village there has been a 500 per cent increase in honey output in recent years, largely due, so I was informed, to the adoption of a new style of hive. Nor is all the initiative confined to governmental agencies. Some of the large land owners are likewise experimenting with new crops, new breeds of cattle, and new techniques of cultivation. On one estate of over 4,000 acres, the citrus crop was as heavy and as fine in quality as any to be seen in Florida or California. The employees were well housed, had their own garden plots, their own handicrafts school for the teaching of rug and carpet weaving, and many of them were expert in the raising of cattle,

chickens, camels, geese and guinea fowl. Admittedly, there are not many such estates.

In industry, the old order is also changing, and rather more rapidly. Although Egyptian manufacturing industry may be said to have had its birth during World War I, it was not until the early thirties that it really got on to its feet. Since then it has made remarkable progress — remarkable, that is, for a country poor in power, industrial raw materials and capital. The following figures, selected more or less at random, tell their own tale:

1. Between 1930 and 1939, the output of Egyptian cotton piece goods increased sixfold, and between 1939 and 1945 by more than 100%.

2. Whereas at the turn of the century most of Egypt's raw sugar was sent abroad (to Marseilles largely) for refining, by 1939 there were enough refineries in the country to handle some imported raw sugar in addition to the entire domestic crop.

3. The number of imported tarbooshes (no Egyptian gentleman feels dressed without a tarboosh) fell from 56,565 dozen in 1913 to 101 dozen in 1948.

4. The production of woollen cloth increased from less than 100,000 yards in the thirties to 2,000,000 yards in 1942.

It is true that many of the more spectacular increases in industrial output were directly due to World War II, which cut Egypt off from almost all of her normal sources of supply and at the same time

The main entrance of El-Azhar University in Cairo (above) and (left) a group of students. The university, founded in 972, has for centuries been the centre of learning in the Mohammedan world. Its present 10,000 students are drawn from all parts of Islam and include a few from the Central Asiatic republics of the U.S.S.R.

Part of the Muski Bazaar in Cairo where the skills of copper- and silversmith may be seen together with foreign merchandise.

created in her very midst an unprecedented demand for war matériel. The needs of the Middle East Supply Centre, with headquarters in Cairo, gave many a chemical, light engineering, electrical, and food processing plant its start in life — and its early prosperity. It is no less true, however, that the Egyptians have no intention of surrendering all the industrial gains which the war secured for them. The postwar period has been difficult for some of the newer concerns, but few have been forced into liquidation, and some have actually expanded their plant and production. If the power shortage can be overcome, Egyptian industrialists are confident that the rest of their troubles will eventually yield to treatment. Since coal, unfortunately, is not found in minable quantities in Egypt, it is to oil and water power that they must look for their salvation. Good quality petroleum occurs in several places, most notably in the Sinai peninsula, and the production of crude oil is increasing. During World War II, its production increased fivefold, and by 1945 Egyptian refineries were able to supply all the country's civilian requirements of gasoline and asphalt. In 1949 production exceeded — for the first time — 2,000,000 metric tons of crude oil. For water power, the country is of course entirely dependent upon the feasibility of harnessing the Nile barrages. At present, attention is focused upon the Aswan Dam which has been heightened for the third time (this time by more than 27 feet), and is now capable of an electricity potential of 300,000 kilowatts. With this power, not only will it be possible

Boy apprentices in the Muski Bazaar. In another ten years or so they will doubtless graduate to ivory; just now they are whittling away on buffalo bones.

to give all parts of the Nile Valley the benefits of cheap domestic electricity and to irrigate additional land on the desert fringe, but also to establish new industrial plants for the manufacture of synthetic nitrates and, ultimately, so it is hoped, of iron and steel goods as well.

In the field of social welfare no less significant developments are afoot. During the past six or seven millennia the vast majority of Egyptians have lived in villages that were sans plumbing, sans sewage, sans schools and services — sans almost everything, in fact, that would make life tolerable for most Canadians. And that is the way most of them continue to live; but if the "community centre" movement, inaugurated in 1941, continues to gather momentum, things could be very different in ten to twenty years' time. In the 150-odd villages where such centres have been established, they *are* different already. Each such centre comprises a dispensary, a mother-and-child welfare unit, public baths and wash-house, a meeting hall with a library, a radio and a small museum. Each centre has a resident health visitor qualified as a midwife, a social worker who often doubles as an agricultural adviser, a doctor, and a laboratory technician. Between them, they attempt to deal with every kind of problem to which an Egyptian village is heir — and their name is legion. Wherever possible, they work through democratically constituted committees of villagers. Part of their job is to keep a health record of each member of the village: one "lab boy" I spoke to had examined 8,000 inhabitants for bilharzia and sprayed 550 houses with DDT in the course of a year's work. Along with the rudiments of health, they seek to teach the principles of self-help, good citizenship and thrift. Courses are given in handicrafts such as needlework, spinning, weaving, and the making of mats from palm leaves: adults are taught to read and write and to organize co-operatives for the purchase of much needed farm implements and the sale of surplus crops. Instead of resorting to arms, as was formerly their wont when passions ran high over a disputed claim to a piece of land, an animal or a woman, these community-trained folks are slowly being converted to more judicial forms of behaviour. And it is all being done on a veritable shoestring, for the cost to the government of each centre is of the order of £1,000 (Egyptian) a year, or approximately half a million dollars annually for the entire operation. Seldom has so much good been brought to so many people at so little cost.

A street in old Cairo. Habits of dress are a mingling of oriental and occidental, as the city is an epitome of old and new Egypt.

Of course it is open to question whether these developments in agriculture, industry and social welfare are anything more than palliatives for the parlous condition in which Egypt presently finds herself. Even some of the country's best friends do not credit them with curative powers. Thus, at the conclusion of four and one-half years of painstaking study of Egyptian village life, the Rocke-

feller Foundation has reported that a clean water supply, sewage disposal, chemical fly control will not solve the health problem, or even notably ameliorate the condition of the *fellahin*. What the Rockefeller investigators would like to do is to tear down the bad villages, move the animals which live with the humans out into separate shelters away from the houses and generally remake the face of Egypt. While this would certainly remove one of the ugliest social sores, it would be no cure-all, for the lowered death rates and increased life expectancy would undoubtedly send the graph of population growth skyrocketing — indeed it has already begun to in the "sanitated" areas.

It is equally debatable whether the agricultural reforms now getting under way have anything more than palliative properties, for the disagreeable truth is that no matter how the cultivable land of Egypt is divided, there is not enough to go round. At the present time approximately 8,000,000 acres are under cultivation: irrigation schemes under construction or on the engineers' drawing boards will add another 4,000,000 acres, making 12,000,000 in all. With seventy per cent of Egypt's twenty million population directly dependent upon agriculture, this means that, at the present time, the amount of cultivable land is less than one-half acre per capita, and that, at most, it might be increased to three-quarters of an acre per capita. Admittedly, the land is good and generous, but what chance is there of the *fellah* living well, let alone becoming a buyer of his country's manufactures when the entire cash value of his year's crops, including the part he and his family live on, is no more than $150! There is no basis here for either a flourishing agriculture or an expanding domestic industry.

To diagnose the condition is easy enough: to find a remedy for it will be more difficult. Emigration, except perhaps to the Sudan, is out of the question: the vast extent of the enveloping arid zone is enough to discourage even the most courageous. Extension of Egypt's own habitable area is possible, but unlikely, so many Egyptians think, while the control of the upper Nile is vested in other hands. Enforcement of population control measures is favoured in some quarters, but it takes time — generations perhaps — to change the social mores of a people deep-dyed in superstition, and tradition.

Offering most immediate promise is an expansion of the already established industries and installation of new ones working primarily for export. With her advantageous position in the Arab World, her head start and cheap labour supply, Egypt should have no great difficulty in winning a large share of the Middle East market in much the same way (and for not dissimilar reasons) as Japan succeeded in capturing a goodly share of the East Asiatic market. However, in the view of an increasing number of Egyptians, the industrial prospects would be much brighter if the Sudan were to be fully incorporated into the body politic of the country. For the Sudan could not only solve Egypt's food problem (it is one of Africa's few crop-surplus areas), it could also provide Egyptian industries with much-needed raw materials, it could (if the *fellahin* would only take to the idea) provide a valuable population outlet, and go far towards allaying the Egyptian anxieties (probably unfounded) regarding the security of the Nile water supply.

These may or may not be valid arguments for abandoning the present condominium status of the Sudan in favour of Egyptian rule, but at least they warrant closer consideration than they have been receiving. Whatever the outcome of the present impasse between the British and Egyptians, one thing, at all events, is certain: a healthy, prosperous Sudan cannot co-exist with a sickly Egypt. They are members of one body. If one member suffers, the other must also, for their futures are linked inextricably to the Nile which is at once their arterial system, alimentary canal and source of sustenance. It is impossible to believe that they will fail to achieve a *modus operandi* that serves the needs of each and the good of both.

The Climate of British Columbia

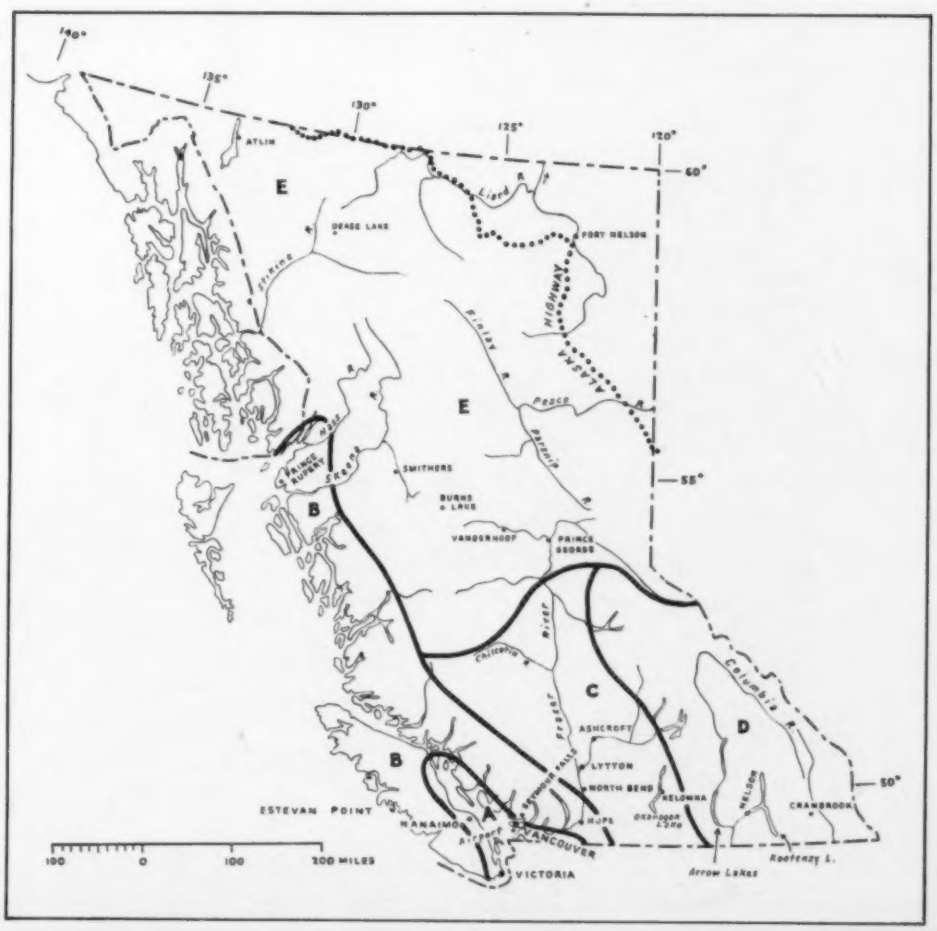
by DONALD KERR

CLIMATIC CONDITIONS vary greatly from one part of British Columbia to another. The coastal fringes are the most humid areas in Canada, the southern interior valleys are among the driest. Frost rarely occurs in southern Vancouver Island from late March until the middle of November. To the north of approximately latitude 54°, east of the Coast Mountains, frost may strike even during the height of the summer. These climatic factors, and many others, exercise a considerable influence on the industries of British Columbia, particularly forestry and agriculture.

Many climatic types are found within the province. Practically every valley has its individual characteristics. In many cases, one slope of a mountain will exhibit climatic features that are considerably different from those of an adjacent incline having a different exposure. In other words, in such a topographically diversified area as British Columbia, many local climates are evident. Nevertheless, from the apparent complexity, a few broad climatic regions may be distinguished. The following are recognized as major climatic divisions: Southwestern British Columbia, Coastal British Columbia, the Fraser Uplands and Valleys, the Columbia-Rocky Mountains and Valleys, and Northern British Columbia (see Fig. 1).

Southwestern British Columbia

Southwestern British Columbia is characterized by dry cool summers and humid mild



Major Climatic Regions of British Columbia.

Fig. 1:—

A. Southwestern British Columbia.
B. Coastal British Columbia.
C. Fraser Uplands and Valleys.
D. Columbia - Rocky Mountains and Valleys.
E. Northern British Columbia.

The Physiographic Divisions of British Columbia
(after Bostock, Davis, Brink and Farstad, in part).

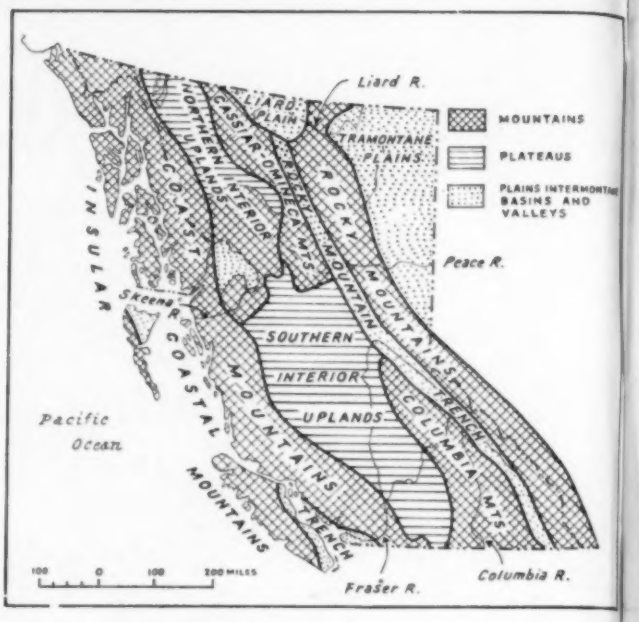
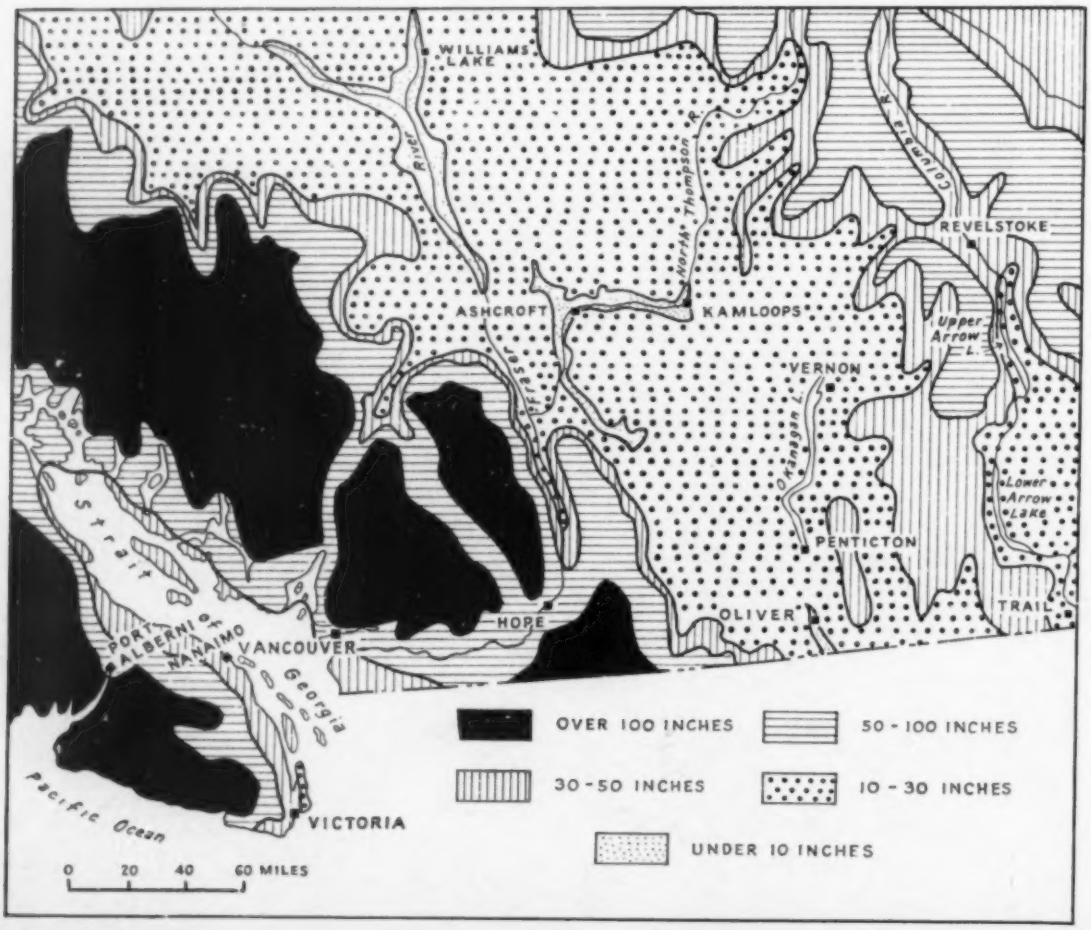


Fig. 2:—In broad outline, British Columbia consists of alternating mountains and deep valleys, trending southeast-northwest from the Pacific Ocean on the southwest to the Tramontane Plains on the northeast.

The Insular Mountains *rise to moderate heights on Vancouver Island and the Queen Charlotte Islands. To the northeast, the* Coastal Trench *separates them from the* Coast Mountains *which rise steeply from tide-water to over 7,000 feet in most sections. Inland, the* Southern Interior Uplands *is a well-dissected plateau (5,000 feet) in which valleys (Okanagan) in the south are entrenched as much as 4,000 feet below the average level. Toward the northwest, hills become more rounded, valleys wider and elevations lower (2,500 feet) in the Nechako district which is the lowest section and has the most subdued topography in the Interior. Plateaus (4,000 feet), deep basins, and mountains which rise a few thousand feet above the plateaus comprise the* Northern Interior Uplands. *To the east of the Interior Uplands, the* Columbia *and the* Cassiar-Omineca Mountains *rise to impressive heights of over 10,000 feet in their central sections but average 7,000 feet throughout. On their northeastern margins, the remarkably persistent* Rocky Mountain Trench *(2,500 feet) separates them from the* Rocky Mountains. *The Rockies reach their greatest heights in the southern sections (over 10,000 feet), diminish in elevation around latitude 54 degrees (average 5,000 feet) and increase again to the north (average 8,000 feet). On the northeast, a relatively narrow foothill zone marks the interior boundary of the Canadian Cordillera. The* Tramontane Plains *occupy the extreme northeastern part of British Columbia. They present a rolling surface at 2,500 feet. A few hills rise over 4,000 feet and the major rivers flow in valleys entrenched as much as 500' below the average level.*

Fig. 3:—Average annual precipitation in southwestern and south-central British Columbia.



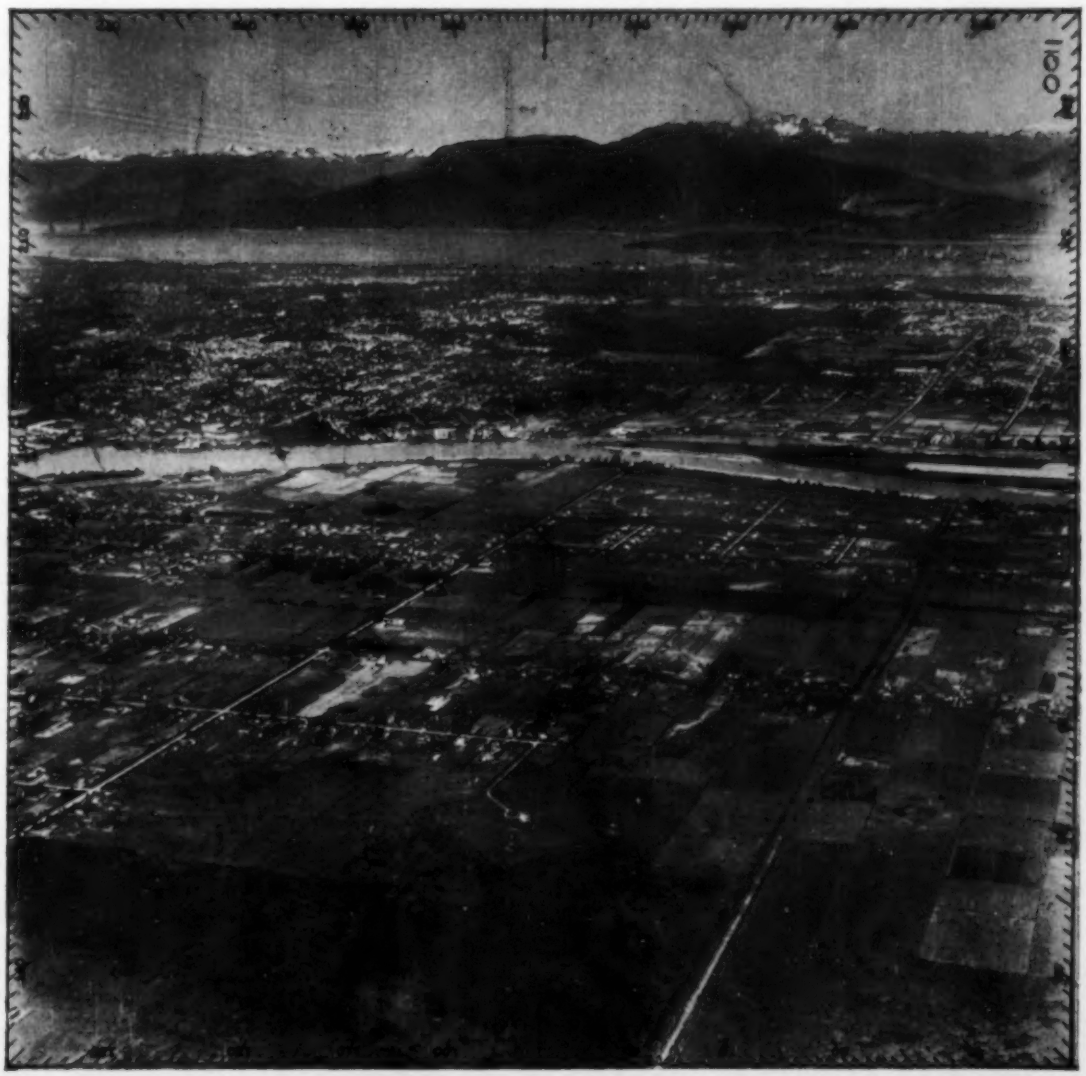
winters. The frost-free season exceeds 200 days in most localities and snowfall is relatively light.

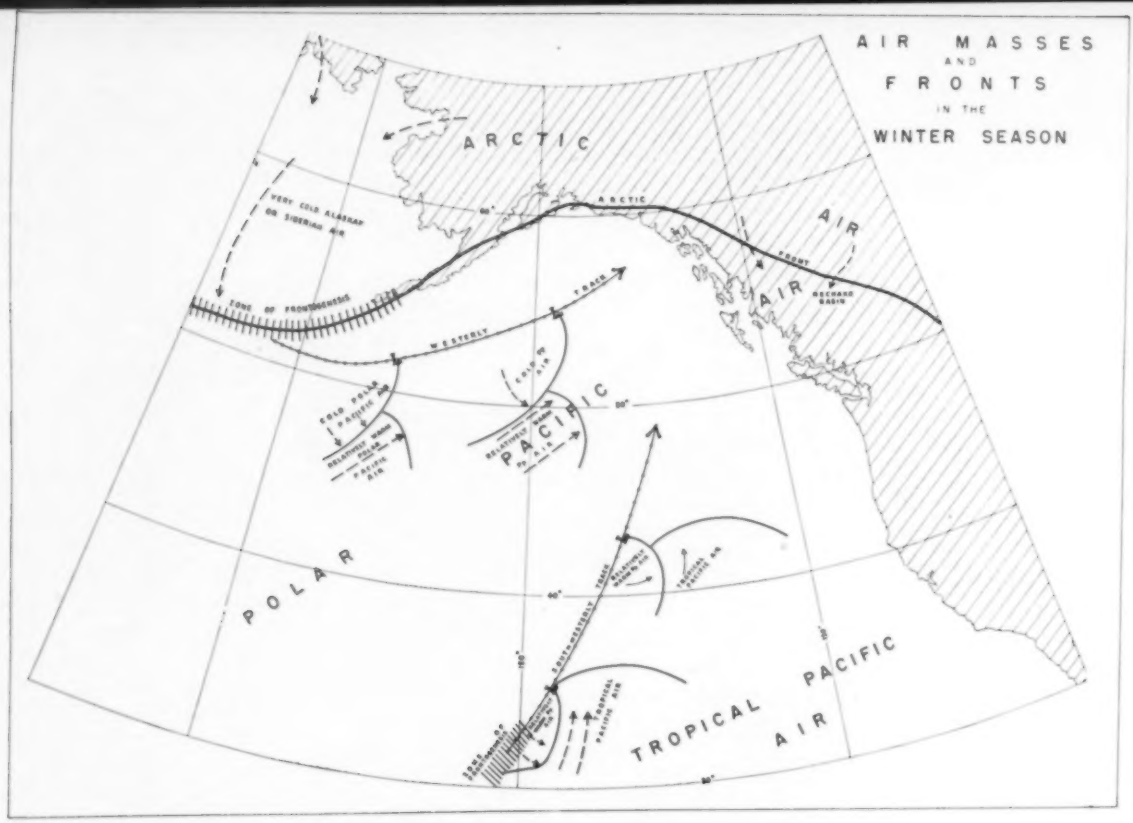
This region includes the low-lying land areas of southeastern Vancouver Island, the Gulf Islands and the Lower Fraser Valley. To the southwest, the Olympic Mountains of Washington rise to over 5,000 feet and to the west, the mountains on Vancouver Island average 3,000 feet. The strait of Juan de Fuca separates these two physiographic sections and gives the region direct access to the sea (Fig. 2).

The prevailing flow of air in all months except July and August is from the southwest. As these winds blow onshore from the Pacific Ocean, they are forced to rise over the aforementioned mountains. In the process, heavy rain falls along their seaward slopes and less rain in their direct lee. Whereas exposed coastal localities such as Estevan Point receive over 100 inches of rain annually, sheltered settlements such as Victoria and Nanaimo average 27 inches and 36 inches of precipitation annually (Fig. 3).

On the northeastern side of the Gulf of Georgia, the Coast and Cascade Mountains rise abruptly to over 5,000 feet. Consequently, as the prevailing flow of air continues toward the northeast, it is again forced to ascend high mountains and heavy rains fall along their slopes. Downtown Vancouver, situated a few miles from the Coast Mountains, receives, on the average, 60 inches of precipitation annually. Vancouver Airport, located in the delta of the

A portion of metropolitan Vancouver. Average annual precipitation in the Fraser delta in the foreground 40 inches; in the downtown area 60 inches; and in the intermediate slopes of the Coast Mountains 150 inches. B.C. Lands and Forests Dept.





Air Masses and Fronts in the Winter Season.

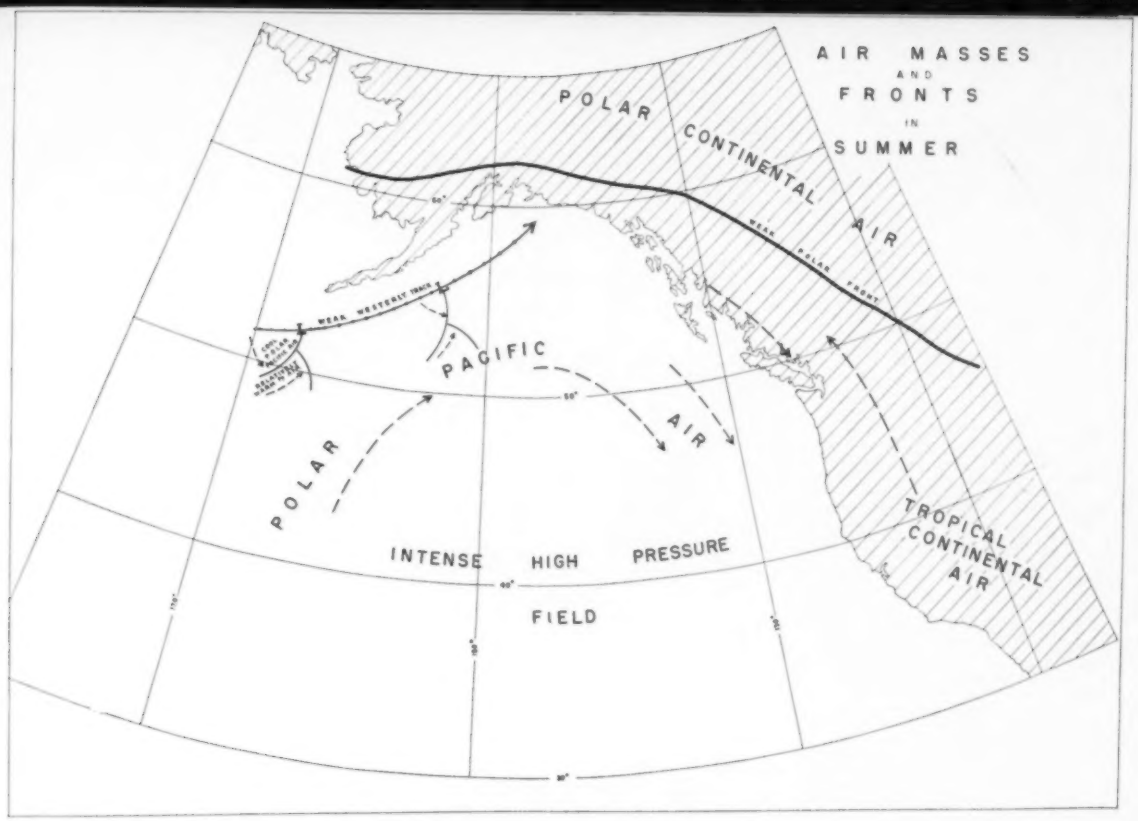
Fig. 4:—In winter, a great number of cyclonic storms develop along the Arctic Front, particularly in the Aleutian area (zone of frontogenesis). They move rapidly onto the coasts of southern Alaska, British Columbia, Washington and Oregon. They form because of the interaction of very cold dry Arctic air, blowing away from Siberia or central Alaska and warmer, more humid, Polar Pacific air. When the Arctic air flows out over the ocean it warms up and increases its moisture content in the lower levels. Because the storms are so numerous in winter, the atmospheric pressure is low, the winds strong and the rainfall heavy over the North Pacific Ocean. They bring heavy precipitation to the coast of British Columbia especially to the exposed mountain slopes. Similar storms develop to the south in the Pacific Ocean and bring rain, strong winds and warm air to the coast of British Columbia. These storms frequently affect California in the winter.
In the interior of British Columbia, Polar Pacific air (modified) is much drier and slightly cooler than on the Coast. Very cold Arctic air dominates northern British Columbia and the Yukon. The Arctic front or leading edge of this air mass seldom moves south-westward to encompass all of British Columbia.

Fraser River, at least ten miles south of the mountains, averages only 40 inches annually. In contrast, Seymour Falls, situated at an elevation of 700 feet above sea level along the windward slope of Mount Seymour of the Coast Mountains, records on the average over 140 inches of precipitation annually.

In southwestern British Columbia, most of the rain falls in the autumn and winter season. Typically, fully 75 per cent is measured from October 1 to March 31 inclusive. Cyclonic storms or low pressure systems bring the largest proportion of rain. They originate in the vicinity of the Aleutian Islands and move towards the Pacific Coast as a part of the prevailing southwesterly circulation. These storms arrive with increasing frequency after the middle of September. They diminish in strength and number after the end of April. Driving rains and stormy winds are associated with them. Snow occasionally falls, but the total amount during a winter averages less than 15 inches at Victoria and 30 inches at Vancouver (Fig. 4).

The summer months, in contrast, are usually very dry.[1] In mid-summer, Victorians experience less rain than the people of any other Canadian city. Conditions approach those of Mediterranean environ-

(1) D. P. Kerr, "*The Summer-Dry Climate of Georgia Basin, British Columbia*". Transactions of the Royal Canadian Institute, Volume 29, Toronto, 1951.



Air Masses and Fronts in Summer.

Fig. 5:—In summer, cyclonic storms are much weaker than in winter and normally affect only the coasts of Alaska and northern British Columbia. An intense high pressure system (the Pacific Anticyclone) dominates the circulation of the North Pacific Ocean. Northwesterly winds blow along the Pacific Coast as far south as Lower California. No cyclonic storms and consequently no rain is associated with this flow. Occasionally the high weakens and low pressure disturbances impinge on the coast and bring light rain as far south as Oregon. From time to time, Tropical Continental air pushes northward along the intermountain valleys to the east of the Coast Mountains and high temperatures are recorded in south-central British Columbia.

ments. Slightly more rain falls in the Vancouver area.

In the warm season, an intense high pressure system usually covers the North Pacific Ocean. Cyclonic storms are displaced to the north of their winter routes and consequently this rain mechanism is, for the most part, denied the Victoria-Vancouver area. Strong northwesterly winds blow along the coast but very little rain is derived from them. Some precipitation falls along the outer exposed coast but practically none in the sheltered sections (Fig. 5).

Temperature extremes are rare in southwestern British Columbia. In winter, Arctic air occasionally crosses the Coast Mountains. It is greatly modified by the time it reaches the Pacific Coast and consequently temperatures seldom drop below 10° F. In some winters, this air mass never reaches the coast; in other years (winter of 1948-49) it is an important weather type. In summer, heat waves are uncommon and the temperature seldom exceeds 90° F.

During the winter months, the daily mean temperature remains above freezing. On calm clear nights in the cool season, the thermometer will register a temperature of about 25° F.; by afternoon, of the following day, the temperature will invariably exceed 40° F. Thick ground fog is often associated with such meteorological conditions; it is most common in low lying areas, forming after sunset and dissipating by noon. In the Vancouver area it occasionally persists during the entire 24-hour period. During rainy spells, the air is cool and raw with temperatures ranging between 35° F. and 40° F.

Spring comes early to the region. Flowers,

Temperature and Precipitation Statistics for Selected Stations in British Columbia. Temperatures in degrees Fahrenheit; precipitation in inches.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
PRINCE RUPERT													
Monthly and annual averages of daily mean temperature	35	36	39	44	48	53	56	58	54	47	42	36	46
Average monthly and annual precipitation	9.8	7.6	8.4	6.7	5.3	4.0	4.8	5.1	7.7	12.2	12.3	11.3	95.2
PENTICTON													
Monthly and annual averages of daily mean temperature	27	30	40	48	56	63	68	66	58	48	38	30	48
Average monthly and annual precipitation	1.0	0.7	0.6	0.7	1.1	1.2	0.8	0.8	1.0	0.8	0.9	1.1	10.7
PRINCE GEORGE													
Monthly and annual averages of daily mean temperature	13	18	30	40	49	56	60	59	50	41	29	16	38
Average monthly and annual precipitation	1.8	1.2	1.4	0.8	1.3	2.1	1.6	2.0	2.0	2.0	1.9	1.9	20.0
VICTORIA													
Monthly and annual averages of daily mean temperature	39	40	44	48	53	57	60	60	56	51	45	41	50
Average monthly and annual precipitation	4.5	3.0	2.3	1.2	0.9	0.8	0.4	0.6	1.5	2.8	4.3	4.7	27.0
VANCOUVER													
Monthly and annual averages of daily mean temperature	36	39	43	48	54	60	64	63	57	50	43	39	49
Average monthly and annual precipitation	8.6	5.8	5.0	3.3	2.8	2.5	1.2	1.7	3.6	5.8	8.3	8.8	57.4
NELSON													
Monthly and annual averages of daily mean temperature	24	23	36	46	54	60	66	64	56	45	35	28	45
Average monthly and annual precipitation	3.5	2.3	2.0	1.6	2.1	2.5	1.6	1.4	1.7	2.3	3.1	3.6	27.7
FORT NELSON													
Monthly and annual averages of daily mean temperature	−5	2	18	37	50	58	62	59	49	36	8	−4	31
Average monthly and annual precipitation	0.8	1.0	0.6	0.6	1.5	2.5	2.4	1.3	1.3	1.1	1.4	0.9	15.4

PRINCE RUPERT

Height above sea level ..... 170 feet
Highest temperature on record ..... 88° F.
Lowest temperature on record ..... −6° F.
Average annual snowfall ..... 40.6 inches
Average frost-free period ..... 198 days
Average annual moisture deficiency in the soil usually occurring in late summer (Thornthwaite) ..... 0 inches

PENTICTON

Height above sea level ..... 1,121 feet
Highest temperature on record ..... 105° F.
Lowest temperature on record ..... −16° F
Average annual snowfall ..... 24.0 inches
Average frost-free period ..... 150 days
Average annual moisture deficiency in the soil usually occurring in late summer (Thornthwaite) ..... 14.6 inches

PRINCE GEORGE

Height above sea level ..... 2,218 feet
Highest temperature on record ..... 102° F.
Lowest temperature on record ..... −57° F.
Average annual snowfall ..... 62.7 inches
Average frost-free period ..... 68 days
Average annual moisture deficiency in the soil usually occurring in mid summer (Thornthwaite) ..... 5.8 inches

VICTORIA

Height above sea level ..... 228 feet
Highest temperature on record ..... 95° F.
Lowest temperature on record ..... −2° F.
Average annual snowfall ..... 14.8 inches
Average frost-free period ..... 275 days
Average annual moisture deficiency in the soil usually occurring in late summer (Thornthwaite) ..... 10 inches

VANCOUVER

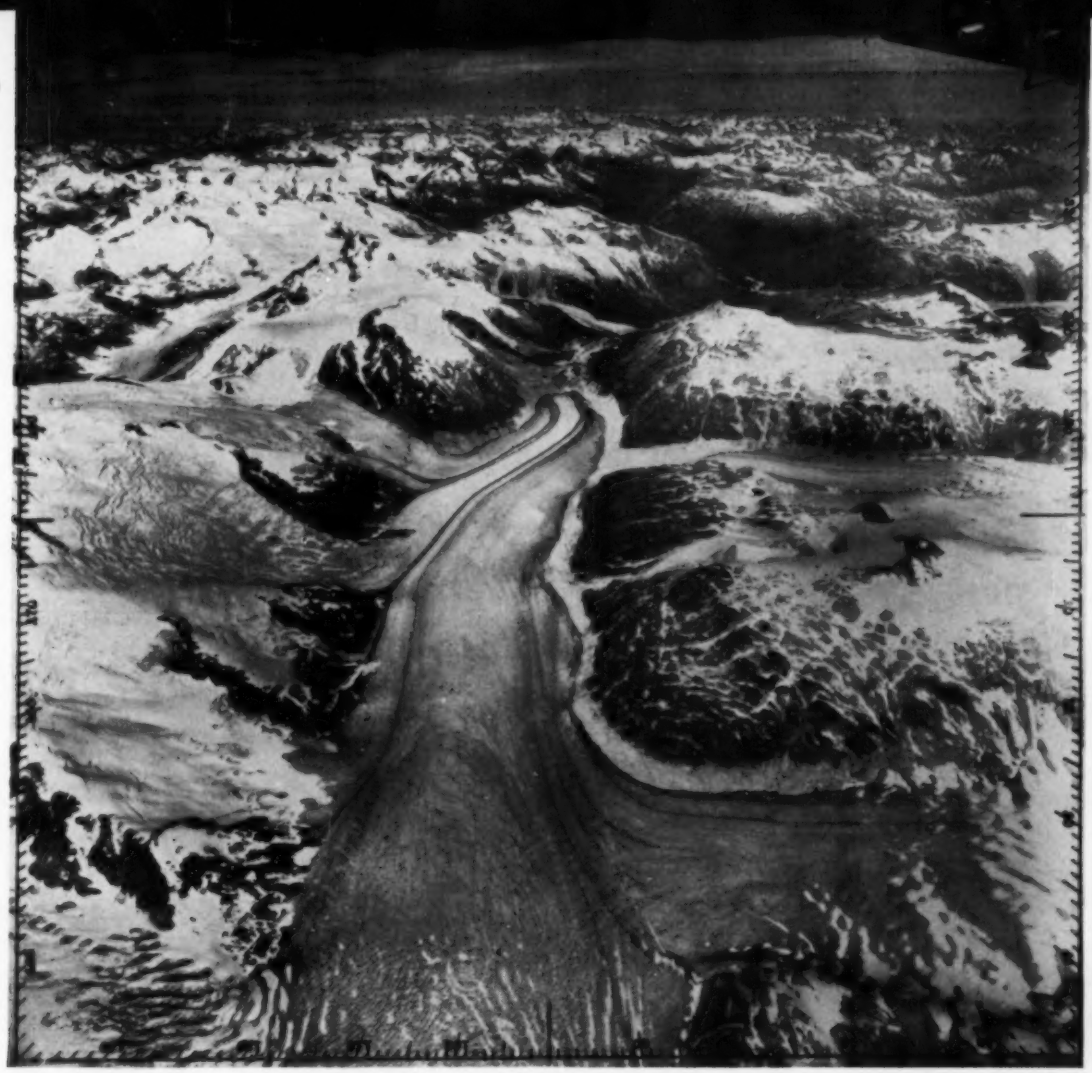
Height above sea level ..... 65 feet
Highest temperature on record ..... 92° F.
Lowest temperature on record ..... 0° F.
Average annual snowfall ..... 30.0 inches
Average frost-free period ..... 219 days
Average annual moisture deficiency in the soil usually occurring in late summer (Thornthwaite) ..... 3.7 inches

NELSON

Height above sea level ..... 2,035 feet
Highest temperature on record ..... 103° F.
Lowest temperature on record ..... −17° F.
Average annual snowfall ..... 89.3 inches
Average frost-free period ..... 144 days
Average annual moisture deficiency in the soil, usually occurring in late summer (Thornthwaite) ..... 6.4 inches

FORT NELSON

Height above sea level ..... 1,230 feet
Highest temperature on record ..... 93° F.
Lowest temperature on record ..... −60° F.
Average annual snowfall ..... 60.3 inches
Average frost-free period ..... 101 days
Average annual moisture deficiency in the soil usually occurring in late summer (Thornthwaite) ..... 4.0 inches



The Coast Mountains at approximately latitude 52°N. Elevation of the mountains is about ten thousand feet above sea level. B.C. Lands and Forests Dept.

such as the daffodil, are always ready for picking and marketing by late March. There is no violent interplay of cold and warm spells which dominate the climate of the spring months in the rest of southern Canada. Gradually summer appears, when warm sunny days (72° F.) and cool nights (50° F.) characterize the weather picture. Autumn rains set in by the middle of September.

Surface winds are variable in the region. The straits between Vancouver Island and the mainland are frequently churned into a turbulent state by southeasterly gales in the cool season. In summer, northwesterly winds are often brisk. Most of the inlets, bays and adjacent land areas experience calmer condition. Victoria is an exception, however, having strong winds in all seasons. The Vancouver harbour, in contrast, is well sheltered and never excessively choppy.

Coastal British Columbia

The Coastal Region includes the western and northern portions of Vancouver Island, the Queen Charlotte Islands and the seaward slopes of the Coast Mountains. Innumerable bays, channels and inlets (fiords), from which mountains rise steeply, indent the coastline. The northeastern third of Graham Island contains the only extensive plain.

Throughout the entire area, precipitation is extremely heavy. All localities receive over 80 inches and a few over 150 inches annually. Near sea level, rain is the chief form of pre-

Sagebrush and grass covering in the Thompson River valley near Ashcroft. The average annual precipitation is 10 inches. Kerr

cipitation, but along the mountain slopes an incredible amount of snow falls during the winter months. Snowflakes are large and heavy and accumulation is rapid.

On one occasion, 48 inches of snow accumulated in a 24-hour period, at a snow survey measurement station in the Coast Mountains.[2] Over wide areas, with relatively gentle slopes between 4,000 feet and 6,000 feet, 20 feet will pile up by early spring.[3] Permanent snowfields occur in a few areas above 6,000 feet.

In summer, fewer cyclonic storms influence the area and consequently less rain falls than during the winter. Nevertheless there is no deficiency of moisture as in the Victoria-Vancouver region. Dry spells are of short duration and the forest fire hazard is much less than in the southern coast region. Sea fog often forms over coastal waters during July and August. Normally it is 4,000 feet thick.

Visitations of very cold or very warm air to this region are rare. Localities near sea level are, the year round, affected by marine air which blows off the Pacific Ocean, and as a result, winter temperatures average over 35° F. and summer temperatures 55° F. Diurnal and annual temperature variations are small. Up-slope, the average January temperature is estimated to be approximately 32° F. at 1,500 feet and 25° F. at 5,000 feet. In July, the mean temperature at 5,000 feet is just under 50° F.

A dense luxuriant coniferous forest grows in response to the damp temperate climate of the coast. Red cedars and hemlocks, averaging 150 feet in height and four feet in diameter, thrive in the most humid areas. Douglas fir is common in the southern sections where many trees reach a height of 200 feet and a diameter of five feet. It grows best where there is a short dry period in summer. Sitka spruce is widespread on the Queen Charlotte Islands, where it stands, on the average, at 125 feet and is four feet broad. Mountain hemlock and alpine fir gradually become more numerous along the upper slopes. Very few trees grow above 5,000 feet in the Coast Mountains. In fact, in a few areas, the tree-line is as low as 2,000 feet.

Gales are common in the region during the cool season. Southeasterly winds are particularly strong, often reaching speeds of 70 miles per hour or more. They blow parallel to the trend of the coast through those straits and channels which are oriented in a northwest-southeast line and consequently

(2) R. C. Farrow, "*Forecasting Run-off from Snow Surveys*". Geographical Journal, Volume 100, 1942, pp. 206-222.
(3) Ibid.

speeds are increased by this funnel effect. Hecate Strait, lying between the Queen Charlotte Islands and the mainland, is especially vulnerable to southeasterly gales and is one of the roughest water bodies in North America.

The Fraser Uplands and Valleys

In contrast to the Pacific Coast of British Columbia, this region has a very dry climate. It comprises an elevated basin, deeply dissected by rivers and lying between the Coast Mountains on the west and the Columbia Mountains to the east. Most of it rises over 3,500 feet above sea level, but characteristic narrow valleys, such as the Okanagan and the Thompson, average just over 1,000 feet.

Even the most casual observer, as he travels through the Fraser corridor* from the Coast to the Interior, is impressed with the comparatively rapid change in plant associations along the route. A dense forest of lofty cedars, hemlocks and firs, gives way rather abruptly to an open pine forest and finally to a treeless grassland-sagebrush complex. This sharp areal differentiation in natural vegetation reflects one of the steepest climatic gradients on the earth's surface. Annual precipitation averages over 100 inches on the outer coast; it is less than 10 inches in the interior valleys. The mean annual precipitation records for four selected stations in the Fraser corridor illustrate this phenomenon: Hope 57 inches; North Bend 36 inches; Lytton 17 inches; Ashcroft 7 inches.

*This pass is used by the Canadian Pacific and Canadian National Railways as well as the Trans-Canada Highway from Vancouver eastward.

The dry Thompson River valley looking east from Ashcroft. The Columbia Mountains rise on the horizon. B.C. Lands and Forests Dept.

The region lies in the rain shadow of the Coast Mountains. Pacific storms moving eastward are forced aloft at the coastal mountain wall and normally cross the Fraser region at intermediate levels, coming into direct contact with only the highest areas. Light precipitation falls from these disturbances in the interior whereas on the coast they produce heavy rain. In summer, thunderstorms occasionally form over the region and showery weather results. The amount of rain from all sources, however, is not sufficient for farming under natural conditions and consequently irrigation is necessary. Intensive production of fruits and vegetables, especially in the Okanagan Valley, characterizes this economy. Where irrigation is impractical the land is used for extensive cattle and sheep grazing or dry farming.

There are much greater diurnal and annual variations in temperature in this region than on the coast. Summer temperatures in the valleys average 70° F.; daily maxima usually exceed 80° F., and from time to time temperatures over 95° F. may be expected. Summer evenings are relatively cool. In winter, average temperatures are from 10 to 20 degrees lower than on the coast, but higher than at comparable latitudes in the prairies (average January temperatures at Vancouver, 36° F., at Kelowna, 25° F., at Regina, Saskatchewan, −1° F.). Arctic air occasionally enters the southern valleys in winter and temperatures drop to −20° F. There are a few favoured locations, such as Penticton on Lake Okanagan, which seldom experience extremely low temperatures. Consequently peach trees, which are winter-killed when the temperature drops below −15° F., may be grown in these areas. The length of the frost-free season varies considerably throughout the region, but averages over 150 days in most of the valleys.

Wind speeds and directions are extremely variable in the region. The prevailing wind velocity at a particular place depends, to a large extent, on the local topography of the area. Valley stations report a high percentage of calm conditions; gales seldom blow in the region, except in the highest areas. In summer, intense heating from the sun causes many local winds. Typically, the movement is up-valley in the daytime and down-slope at night.

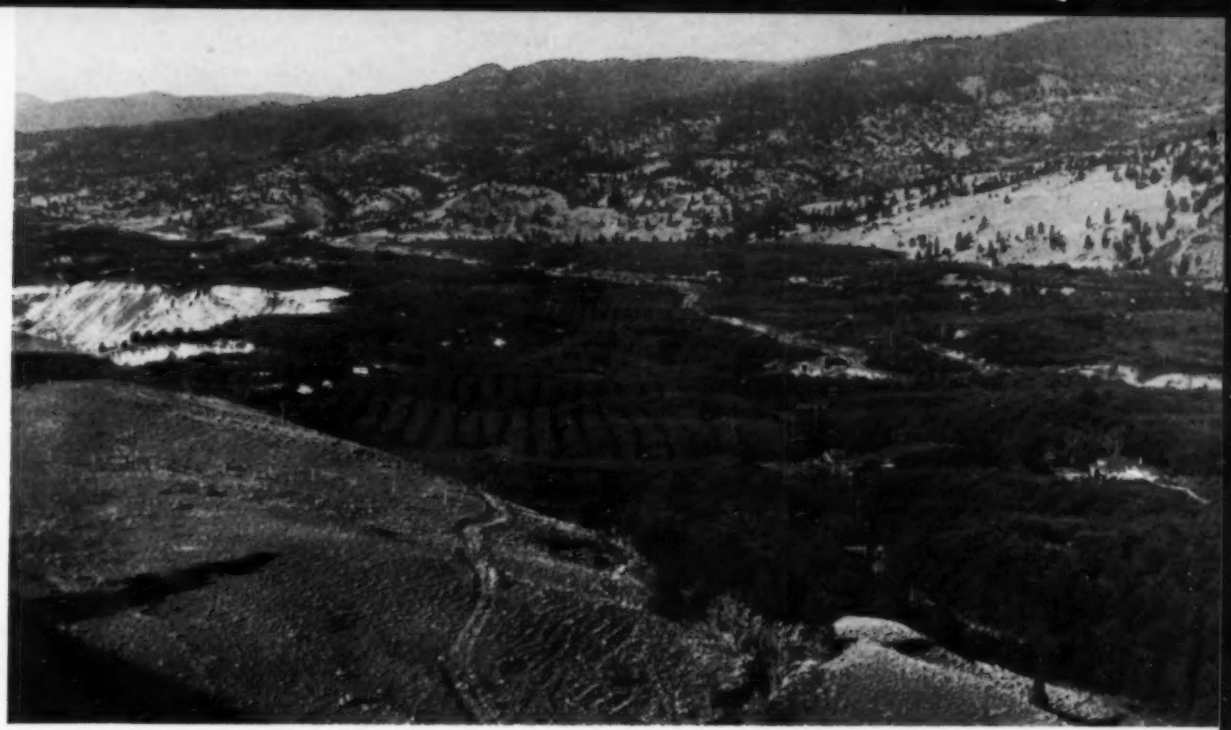
The Columbia-Rocky Mountains and Valleys

The Columbia and Rocky Mountains rise above the Fraser Uplands on the east. Deep narrow valleys, most of which trend north-south, separate the many ranges which make up these mountains.

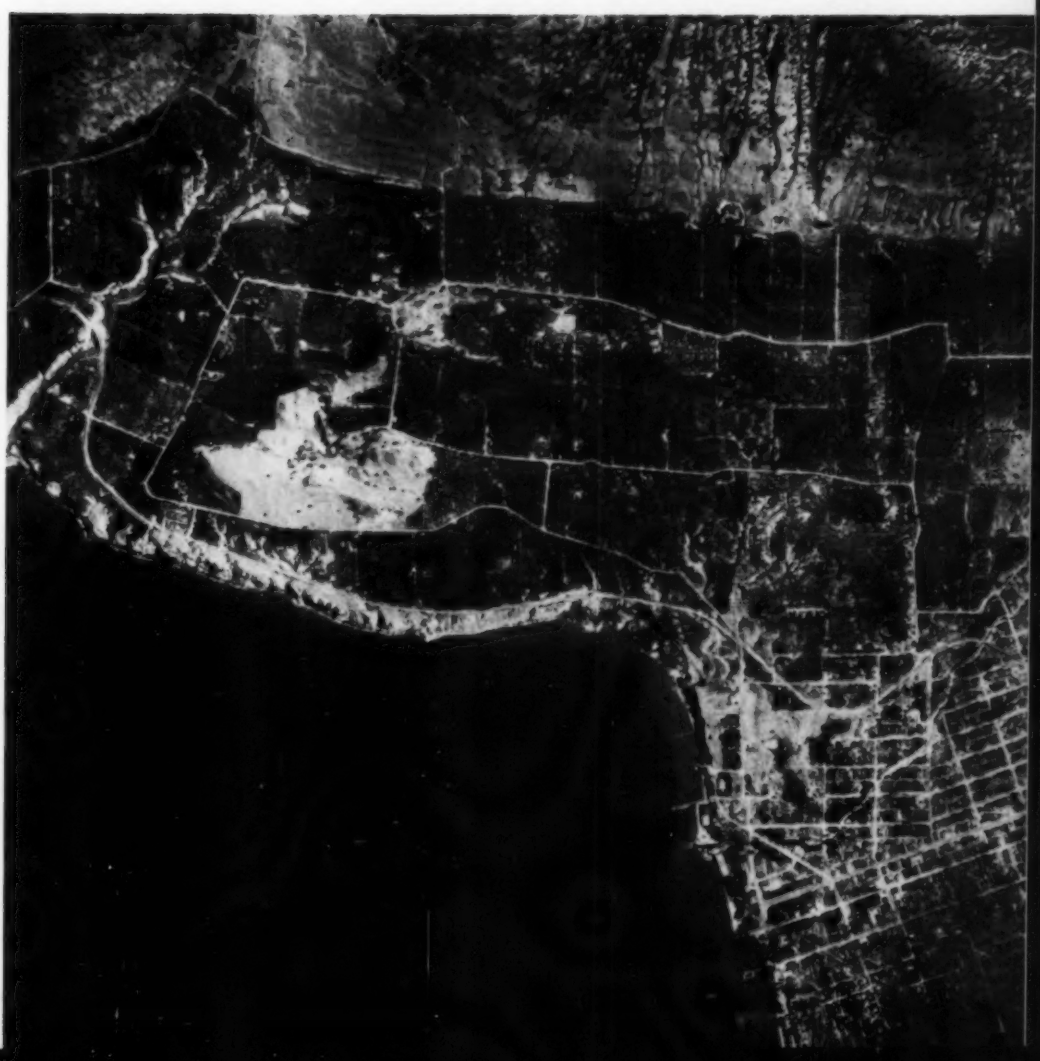
The climate in this region is more humid than that in the Fraser Uplands. Mean annual precipitation exceeds 20 inches, except in a few well-sheltered valleys, such as the Rocky Mountain Trench where it averages 15 inches. The rugged slopes of these eastern mountains catch more rain and snow from Pacific storms, passing aloft, eastward, than the rounded highlands of the Fraser Uplands which are from one to three thousand feet lower. Thunderstorms are more active in this area in summer than to the west and, as a result, more rain falls.

Forest-grassland transition near Lytton in the Fraser corridor. The average annual precipitation is 17 inches.

Kerr



An irrigated orchard near Naramata in the Okanagan Valley. The average annual precipitation is about 10 inches.
B.C. Travel Bureau



Irrigated orchards and non-irrigated lands at Penticton which lies in the rain shadow of the Cascade Mountains.
B.C. Lands and Forests Dept.

Precipitation is fairly evenly distributed throughout the year in southeastern British Columbia. At most stations, however, a spring minimum and two maxima, in winter and early summer, prevail. Normal yearly snowfall ranges between 50 and 100 inches.

The mean January temperature is approximately 25° F. in the southern valleys. Toward the north, it is from 5° F. to 10° F. lower; to the east, in the Rocky Mountain Trench, Cranbrook has, on the average, cooler winters and summers.

On occasion, cold Arctic air will drift southward into the valleys and low temperatures follow. Such cold spells are usually of short duration because of the prevailing flow of Pacific air from the west.

The July average temperature approximates 65° F. in the low-lying areas. Daily maxima and extremes are not so high as in the Fraser valleys to the west. The growing season is long enough for ripening of orchard fruits south of about latitude 51°. To the north and also to the east in the Rocky Mountain Trench, the risk of light summer frosts is a potential agricultural hazard.

Surface winds, as in the Fraser Uplands, are exceedingly variable.

The natural vegetation of the region reflects the climate. Whereas sagebrush and open yellow pine forests are common in the Fraser Uplands, to the west, a moderately dense forest, consisting chiefly of western hemlock and red cedar, white pine and Douglas fir is characteristic of the Kootenay valleys and mountains slopes. The forest, to a large extent, resembles that of the coast, but typical species are smaller. Yellow pine is common in the southern part of the Rocky Mountain Trench and various types of spruce and pine become more numerous in the Rocky Mountains to the east. The timber-line averages 6,000 feet.

Open pine forest of the Rocky Mountain Trench, twenty miles north of Kimberley. The average annual precipitation is 15 inches. Kerr

Northern British Columbia

To the north of approximately latitude 53°, east of the Coast Mountains, the climate is characterized by long cold winters, short warm summers, and light to moderate precipitation. Admittedly, climatic differences can be distinguished from one part of this vast region to another but there is more uniformity in climate throughout the area than diversity.

Northern British Columbia is a complex of several mountain ranges interrupted by well-dissected plateaus in the north-central sec-

Tree line at 4,000 feet in the northern Rocky Mountains near Muncho Lake. Kerr

tions, a moderately low rolling plateau (the Nechako) in the south-central, and plains (the Great Plains) to the northeast. The Coast Mountains separate the region from the Pacific Ocean on the west.

The annual temperature range in the region is very high, especially to the northeast where the most severe continental conditions are encountered. In the extreme western and southwestern sections, the Pacific Ocean exerts some influence on the temperature regime, resulting in higher winter and slightly lower summer temperatures than farther east.

Arctic air dominates most of the region in the cool season and very low temperatures are recorded. Fort Nelson, to the east of the Rocky Mountains, has an average January temperature of −5° F.; Atlin to the west, 2° F. Severe outbreaks from the north result in temperatures below −30° F. several times in one winter. The Nechako area is invaded by relatively mild Pacific air more frequently in winter than other sections. The Coast

A mixture of Engelmann spruce, aspen, and alpine fir in the Frase River valley just south of Prince George. The average annual precipitation is 20 inches. Kerr

At Taylors Flats, on the Peace River, good crops of grain are harvested. Harrington

Mountains directly to the west average only 4,500 feet and thus facilitate the movement inland of mild moist air at low levels. Furthermore winds tend to be more westerly in this area than farther north, where northwesterlies blow with vigour. For example Prince George has an average January temperature of 13° F.

In summer, the average temperature is under 60° F. throughout the region. Long spells of dry warm weather with daily temperature readings in the seventies occur. They are interrupted by cool rainy weather which may be followed by frost in low-lying areas. Heat waves (over 85° F.) are uncommon but may be observed in some summers. Northeastern localities, especially in the Peace and Nelson Basins, are most favoured for high temperatures.

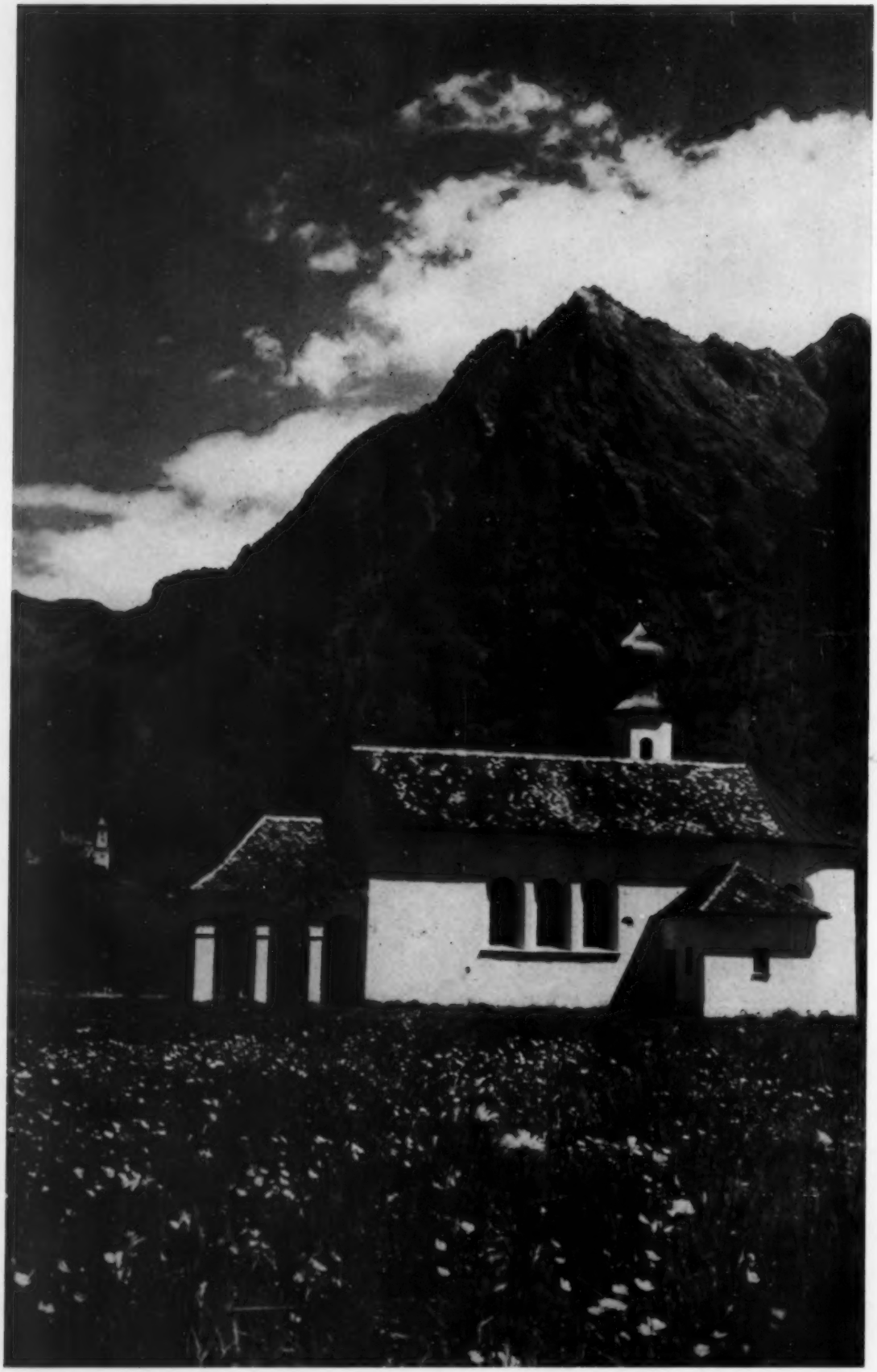
Mean annual precipitation is 15 inches. It ranges between a high of over 22 inches in the eastern Nechako and a low of 10 inches to the immediate east of the highest ranges in the Coast Mountains. As mentioned, Pacific storms cross the Nechako plateau in low levels because of the reduced elevation of the Coast Mountains to the west.

Seasonal distribution of precipitation varies considerably. Heavy late summer rains in the pioneer farming belt along the Canadian National Railway near Prince George and Vanderhoof seriously disrupt harvesting in one year out of five. On the other hand, such conditions rarely occur in the Peace River area where most rain falls in the early summer. Early spring is fairly dry in all areas. Snowfall averages 60 inches in the region.

A great variety of trees, including principally black and white spruce, alpine fir, balsam poplar, lodgepole pine and trembling aspen reflect the severe continental characteristics of the climate. Most trees are too small to be of commercial value. A few open prairies have been appropriated for wheat farming in the Peace River area and also in the western part of the Nechako near Burns Lake and Smithers. No farming is attempted north of these areas, but a few vegetable gardens are planted annually near the various airports, trading posts, missions and mining camps. Large scale agricultural settlement in the area will be limited in the future not only by scarcity of agricultural soils, but also by the danger of summer frost. The necessity of irrigation to the north and east of the Nechako should also be considered in any land settlement policy.

B.C. Travel Bureau

A stand of red cedar on Vancouver Island where the average annual precipitation is more than 80 inches.



In a flowery meadow at the southwestern extremity of Liechtenstein, is the church of Maria-Hilf, rebuilt at the beginning of the eighteenth century. Behind it, to the left, is the ancient Castle of Gutenberg, perched on a rocky eminence above the village of Balzers.

Liechtenstein

by KEES VAN HOEK

Photographs by Quick, Vaduz

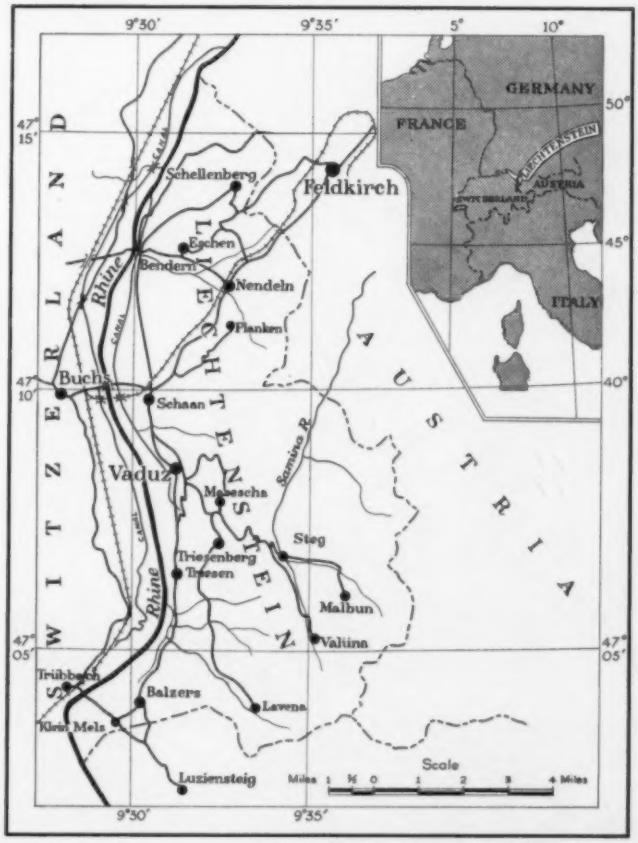
THE ARLBERG-ORIENT EXPRESS, with its ten imposing through-carriages, from Calais and Paris to Prague, Vienna, Budapest and Bucharest, stops in Swiss Buchs. There it crosses the Rhine and veers into Austria. But first, for a quarter of an hour or so, the travellers, soon to disappear behind the "iron curtain", pass through a smiling countryside and by pretty, spotless villages, in part of the tiny Principality of Liechtenstein.

Liechtenstein is entirely independent, with its own sovereign and parliament, its own laws and judiciary. It has no army, and a police force of only nine. It adopted Swiss currency in 1921 and in 1924 entered the Swiss Customs Union. Swiss legations and consulates abroad also represent the Liechtenstein Government, which only in Berne has a legation of its own. These are measures born of common sense, and in no way impede full sovereignty. As the head of the Government put it to me: "We can at any time, if we so wish, cancel these arrangements, and that is the proof of complete independence".

Liechtenstein was founded in 1719 as part of the Holy Roman Empire. It has never lost, or annexed, any territory and has never known war. In 1918, when the Habsburg Empire was dissolved, it cancelled its Customs Union with Austria but as it found a frontier running over a dozen mountain passes and Rhine bridges difficult to control it negotiated, five years later, a Customs Union with Switzerland.

Its only dangerous moment came with the *Anschluss*. With bated breath the Liechtensteiners saw the Nazi panzers which had overrun Austria roll to a halt at their own frontier posts. Switzerland could not have prevented Nazi occupation of their tiny neighbour — somehow Hitler must have thought the invasion of so puny a state inglorious. After the *Anschluss*, the Sovereign and his Prime Minister paid a state visit to the ruler of the Reich, which had now become their neighbour. Shrewdly, they took the Swiss Minister to Germany with them on this audience—after all, he represented Liechtenstein in Berlin. One man refused to go—the perennial President of Parliament, a parish priest by calling and a very sturdy character to boot.

No pressure was applied then, or afterwards. By treating Liechtensteiners who went to work in the Reich as favoured guests, the Nazis hoped to foster a spontaneous movement "Home into the Reich". It did not come, though the Vaduz Government had



Canadian Geographical Journal map.

A Liechtenstein girl in the costume of the country. Behind her is the Castle of Vaduz. The people are of Celtic, Roman and German stock, and a German dialect is spoken.

The pattern of farmlands in an alpine valley near Steg. Remote mountain slopes are dotted with wooden huts, where cowherds live in summer, and others where cheese and butter are made. This small country has more than a dozen peaks that rise over a mile high.

to use all its diplomacy to prevent the provocations of the few Nazis from boiling over into riots.

In 1945 Russians arrived, 600 "Whites" who had fought against the "Reds". They were put into a camp, and soon an official Russian delegation, headed by a Red Army colonel, demanded their enforced return home. For half a year the Leichtenstein Government emulated Molotov by repeating "no"—just as definitely, albeit much more amiably. The mission at last departed without any success. The 600 White Russians finally emigrated, at Liechtenstein's expense, to the Argentine. Every man was in a new suit and every sick man had been treated in hospital or sanatorium.

I arrived in the Principality just after the general elections. Two parties had contested for the favour of the 12,000-strong population, the "Progressive Citizens" and the "Patriotic Union". Even the parties themselves—they are both catholic and know no class distinction—find it difficult to explain what exactly is the difference. "Well, if you must have a difference", so one burgher, exasperated by my desire for precision finally admitted, "the fifty-five per cent Progressive are, perhaps, the tiniest bit more conservative than the forty-five per cent others". Together, they form a coalition government in the Parliament of fifteen deputies. Lilliputian as this number may sound, they take their politics seriously. The parliamentary debates of early May were still being published (as this is done verbatim, the reports run the leisured course of a serial) in the newspapers of late June.

But then no other state has so democratic a constitution. Any 400 voters can demand a plebiscite on any measure already passed by Parliament or can themselves propose a bill to be debated by Parliament.

Goethe (who frequently stopped here on

On the northern lowland is the hamlet of Bendern, its church and tower seen here. Its name is said to be Celtic, meaning the tower on the hill, and from early days the tower guarded this end of the plain, which lies between the confluence of the Rhine and the Austrian River Ill.

his way to and from Italy) once wrote that only people who understand small things may discuss matters of big impact. Aside from that wise warning, I found it a stimulating experience to study and report how a very small nation, living in the heart of the post-war strife-torn continent, has managed to maintain its time-hallowed ways of peace and concord.

Liechtenstein is a spacious land. You forget that it is only 62 square miles in area when you stand under the pergola of a crossroads chapel set in silver birches on a hillside, and see the smiling valley of the middle Rhine stretched out before you. The river is the frontier with Switzerland; to the west and south rise the Swiss Alps, to the east the mountain rampart behind which lies Austria.

There is hardly a family in the small state which does not live in its own house. Dotted over the fertile valley, along rows of tall poplars, amidst orchards and vineyards, the sturdy farmhouses raise their steep roofs. Huddled in the folds of the foothills, lie the modern villas, gay in their different colours. There is not a town proper in the land, yet the village main streets are of the most advanced twentieth century type, in a traditional setting. What two thousand years ago was a highway for the Roman legions, is now a perfect tourist road, and the traveller entering the village hotels finds in these quaint, low-ceilinged, old-fashioned interiors, every modern device at his service. In a state of which one-quarter is mountains and another quarter forests, agriculture cannot provide for the entire population. Slightly

Malbun, 5,000 feet high in the Samina Valley, not far from the Austrian frontier. The alpine slopes provide summer pasture for the cattle. Many people go to wooden chalets in Steg and Malbun, which is also a health resort, during the hot weather.

over half the wage-earners are employed in industries—in factories which look like summer colonies—whose products give much work and need little raw material, such as the 60,000,000 artificial teeth which Liechtenstein exports annually. Some are employed in the sawmills, the two textile factories, the metal workshops, in vegetable canning and the manufacture of ceramics. However, the country is primarily agricultural and cattle raising (mainly for milk production) is the chief industry. The most important crop is maize, which is the staple diet. Diking and irrigation have made the fertile Rhine valley productive and potatoes and other vegetables are grown, as well as vines and tree fruits. The sun and the hot Föhn wind from the south favour the vineyards, from which are produced some 20,000 gallons of wine a year, most of it red and rather like the *vin rosé* of France.

The seat of the government is Vaduz. One spacious, new-renaissance, three-storey building houses the Government and the law courts, the state bank and the prison, parliament and the treasury.

Here in a big, bright room—in which a crucifix between candlesticks, and the paintings of the sovereigns are the only decoration—works the "Chief of the Princely Government", as the inscription over his door puts it. The people address him as *Herr Regierungschef*. Alexander Frick is the son of a coachman; as he was the smallest in physique among eleven children, he studied to become a teacher. He then entered the civil service, and made a name for himself, first administratively, as an honest and capable head of the tax department and, politically, as a militant anti-totalitarian. At the age of 35—five years ago—he became Prime Minister. A friendly man, an alert listener and eager conversationalist, open and unaffected, his principles are not just hobby-horses. For instance, Liechtenstein could make a fortune, by allowing a powerful commercial radio station to be built. Herr Frick vetoed it as much because of the danger of

The chapel of St. Mamertus on the hills near Triesen. In the background is Switzerland, the eastward slopes of the Swiss Alps rising beyond the river Rhine.

The village of Triesen. It is said to be on the site of a Roman town called Trisuna that was buried by a landslide hundreds of years ago.

Vaduz, capital of the principality, is the home of some 2,000 people. On the hill, dominating the town, is the historic castle.

easy money, as because the Government does not like such Americanization in the heart of Europe. The golden luxury—tourist temptation of casinos which might turn Vaduz into a Monte Carlo—was also rejected. Not that the country objects to making an extra shilling. Its stamps—valued by philatelists and amateurs alike for their beauty—bring in about a quarter of the $15,000,000 annual State budget.

Taxes are the lowest in Europe for wage and salary earners, rising from 2 per cent to less than 10 per cent on the highest incomes. If you live on private means, you can see the Government and arrange amicably for a lump sum. Many offices in Vaduz's main street bear the name plates of holding companies, whose activities never see the Liechtenstein day, which have taken up registration here to save on taxes. Some of the biggest concerns in Europe are behind these nameplates. To a certain extent, that is all to the good, as so small a country cannot afford to run into debt. "All the same", the Regierungschef comments, "we watch against rackets". He holds that "it is a good thing that the Rhine, which so often tries to break its banks, costs us a good deal of money every year in canalization, damming and diking—thus we are never allowed to forget the fact that sweat and labour should earn us our bread and not mere unproductive money".

In winter the young Rhine looks most chaste and peaceful, and nowhere more picturesque than where its covered bridges, like brown wooden bracelets, span its light green bed. But the self-same Rhine when the snow begins to melt and when the waterfalls begin to thaw in the nearby Swiss mountains rises from a sluggish 30 cubic metre flow per second to a racing torrent of a hundred times its winter volume, and that within a few hours! Rhine "correction", with deep canals ready to take the overflow to prevent the fertile valley from being flooded into a vast swamp, as has happened before, cost Switzerland, Austria, and Liechtenstein

much money, thought and labour.

As I walked one sun-drenched morning far into the valley, I heard the harsh grinding of machinery at work deepening a now dry canal bed—a noise at times swamping with a sudden roar all the pastoral sounds of bells and birds. It helped me to understand the sentiment of the invocation painted underneath the fresco of a mightily bearded God the Father on the wall of a farmhouse:

Ueber Auen, Rhein und Land
Halte, Herr Gott, Deine Hand.

(Over valley, Rhine and land—
Hold, Lord God, Thine hand.)

Viewing the Principality from a Rhine bridge in the south it looks as overpowering as it looked pastoral from the lowland plain crossed by the railway in the north. The foothills, in parts gently mounting, in parts abruptly rising in sheer cliffs, are thickly forested, holding in the folds of high valleys the deep carpets of Alpine meadows, round which lie snugly embedded hamlets, their white church towers and red roofs like scattered toys. Above them the Alps rise in mighty flanks of granite, a jagged line of peaks stabbing the blue sky. Less than twenty miles long, Liechtenstein is at its broadest but six miles wide, yet within that area it rises from a few feet below Rhine level to the more than 8,000-feet-high peaks which stand sentinel over its frontier with Austria on the east and Switzerland on the south.

The upland Samina Valley is reached by a winding road, past dense woods of towering firs, thence through a tunnel. This alpine valley, where cattle are grazed in summer, is dotted with a rare glistening white villa or hotel, or isolated farmhouses, where the red geraniums make a splash of colour behind the small square windows set in façades of beautifully carved, rich brown wood.

The Castle of Vaduz, medieval stronghold of the Princes of Liechtenstein. The old building was restored, with historical accuracy, in the nineteenth century.

In Vaduz, the capital, I called at the *Schloss*. This castle, which is the residence

Inner court of the Castle of Vaduz, residence of the reigning family. Modern amenities prevail throughout Liechtenstein and there is not a home without electric light.

of the reigning prince, stands atop the cliff which rises sheer from the town. There is now a rock garden in the old moat; the car clanks over the drawbridge past ceremonial cannons, and the courtyard is of such pure medieval design that in the stillness of the noon-hour siesta one expects a crusader to come home any moment and a brocaded lady to descend the heavy outer oak staircase. Only when you enter the castle, when the receiving *Hofmeister* pushes a knob in the graceful panelling to summon the lift, when you discover that the lovely heraldic grille in the wall between the priceless Gobelins of the library hides the ultra-modern oil-heated radiators, do you realize that all the beauty of past times is here wedded to modern comfort.

The sovereign is addressed as *Durchlaucht* —an untranslatable word conveying, in sound and meaning, awe and grace. The twelfth head of the state is Franz Joseph II, born in Styria 45 years ago, son of a sister of the Sarajevo-murdered Archduke Franz Ferdinand. He succeeded his uncle in 1938, married in 1942 the beautiful, dark Countess Gina von Wilczek. She is a philologist by study; and a linguist by practice. They are, with their three young sons, a most popular family, and their pictures hang in every Liechtenstein home. The Prince looks somewhat Slavic, but then Liechtenstein and Habsburg, intermarried with Czech, Hungarian and Polish nobility, must be the most mixed blue blood in Europe.

The reigning prince studied agriculture and forestry at university, but his private library proves his catholic interest in all modern problems. His desk, incidentally, displayed rows of family portraits, in stately leather and silver embossed and coroneted frames. Theirs is a numerous family: the Prince himself is one of eight children. They are also one of the richest families in Europe, albeit that in recent years the family fortune has been hit severely by the confiscation without compensation of their vast estates, forests and mines in Czechoslovakia.

The magnificent Liechtenstein Palace near the Burg Theatre in Vienna lies in the Russian zone. The building itself is damaged but when the Russians were closing in on Vienna, the German authorities allowed the Prince to take his pictures to safety, and a fleet of lorries brought them through the Alps to the Castle in Vaduz.

They form the finest art collection in the world still in private ownership, fifteen generations of art-loving and enlightened princes having made it so, from the first Cardinal Liechtenstein in 1400 through a long line of princes, most of them trained art-historians. They constantly weeded out the collection and devoted to it life and fortune, travelling the continent, attending auctions, bargaining years for one particular picture, commissioning painters, to make it representative of all schools.

The reigning family of Liechtenstein, which is a constitutional monarchy.

The interior of Vaduz Castle has been modernized. It is a treasure-house of medieval art and in addition to its furniture, tapestries, wrought iron, and household utensils, it houses a magnificent collection of pictures.

The collection is stored on two floors of the old Castle keep (which dates from 900), hung on partitions which closely pack all the available floor space, in conditions of carefully controlled atmosphere. Here a Rembrandt portrait hangs between a Botticelli Madonna and a Titian coronation. There is a Venetian vista from Guardi, shoulder to shoulder with an altar piece by Cranach or Holbein. The lace-collared burghers of Frans Hals and the kitchenmaids of Jan Steen elbow Titian and Tiepolo; Gainsborough aristocrats meet Brueghel peasants. A lace-surpliced Matys canon hangs in the embarrassing vicinity of a Chardin nude, and opposite a voluptuous Rubens; the waterfalls of Ruysdael and the good Flemish earth of Memlinck between the courtiers of Romney and the courtesans of Van Dyck. Wherever I peeped, was a resounding name—da Vinci, Poussin, Cuyp, Goya. The riches of ten centuries of European civilization at its most illustrious are here stored cheek by jowl in a thousand-year-old stone keep. It is one of the many unexpected aspects of this amazing diminutive state of the river valley and the high mountains that goes its independent way in the heart of troubled Europe—half-way between Paris and Vienna, Berlin and Rome.

"El Tule", found at Oaxaca, Mexico, one of the world's oldest trees, is a squatty cypress.

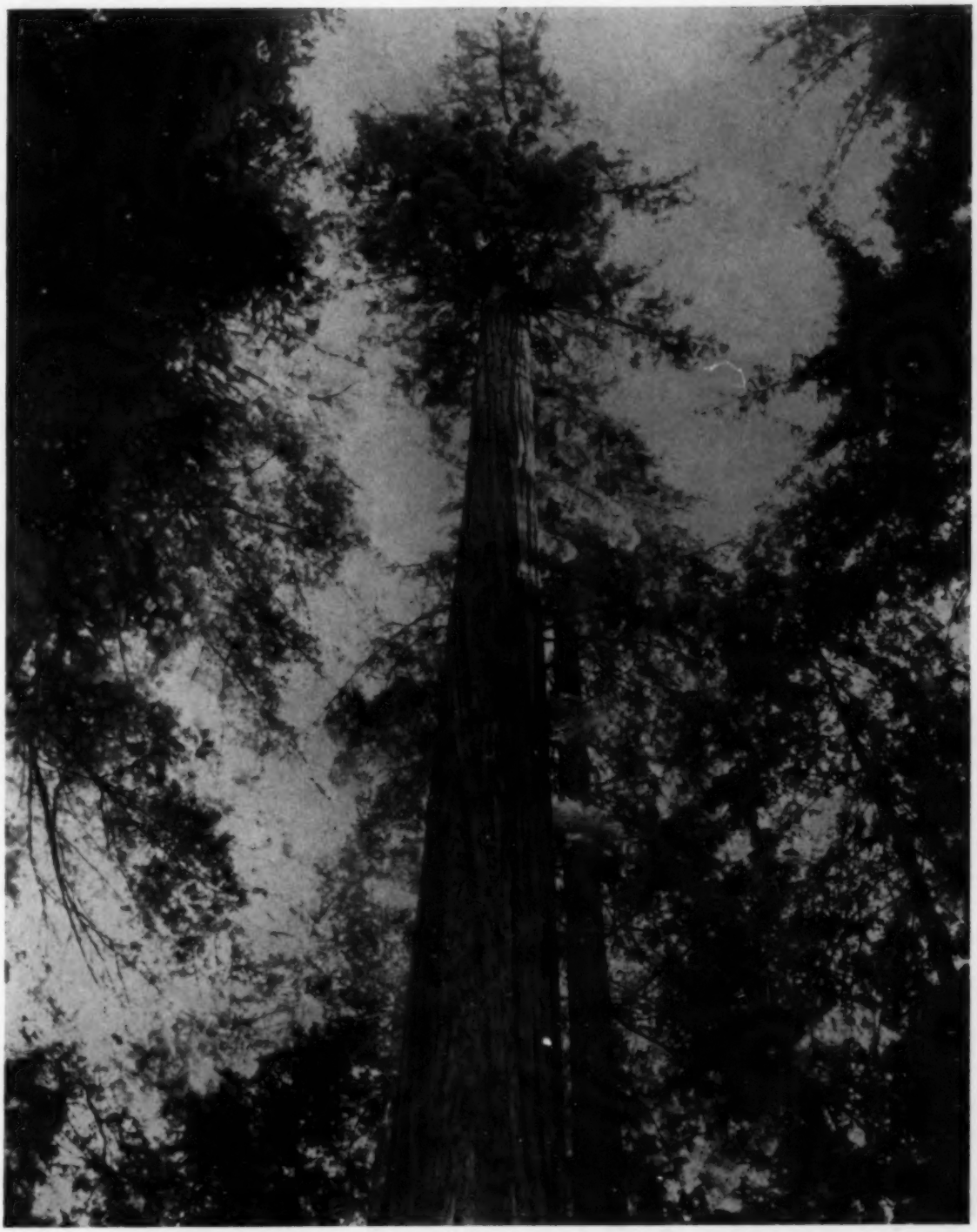
Giant Trees

Photographs and notes by DON GLASSMAN

TWO GIANT TREES on North American soil rank among the world's oldest and tallest living things. They are the Mexican cypress "El Tule", and the California redwood "Founder's Tree".

A veritable Methuselah of the plant kingdom, El Tule has lived nearly 2,000 years. It stands in a village churchyard near Oaxaca, Mexico. It has the largest trunk on record — 120 feet in circumference. Three thousand miles to the north, near Dyerville, California, the Founder's Tree stretches to an airy height of 308 feet above the ground.

The two botanical wonders have one similarity and many differences. Both are evergreens, but in appearance they resemble Mutt and Jeff. Squat and fat, El Tule's tallest branch is under 150 feet; the Founder's Tree, only 62 feet in circumference, soars heavenward. El Tule, with its round silhouette of dense foliage, spreads itself like an old woman; the long shaft of the Founder's Tree ends like a feather duster. The California monster can look down on El Tule, but when it comes to age, the redwood skyscraper is, by comparison, still in its infancy. When the Founder's Tree was a seedling, El Tule had the girth of a giant, and when Joan of Arc was burned at the stake, El Tule was the object of pagan rites by the tree-worshipping Zapotecs and Mixtecs.



The "Founder's Tree", near Dyerville, California, is a towering redwood.

At high noon El Tule's shadow covers some 7,200 square feet; the Founder's Tree, deep in a grove of giant redwoods, has no visible shadow.

The Founder's Tree attracts tourists, but pious pilgrims hold reunions twice a year at El Tule. Volumes of verse have been dedicated to this ancient deity, whose legendry predates Columbus; the Founder's Tree was discovered only a few decades ago.

The chapel in 1926. J. W. Michaud

The Cuthbert Chapel at Berthier

by E. G. WOODLEY

BERTHIER, a small town in the Province of Quebec, has a historic past. It is situated at the head of Lake St. Peter, about fifty miles east of Montreal. Close to the highway, in a field on the northern edge of the town, stands the Cuthbert Chapel. Erected over 150 years ago by a Scottish Protestant seigneur, it is the symbol of a vital part of this past. The Seigniory of Berthier dates from 1672 when it was granted to Sieur Raudin who in the following year sold it to Alexandre Berthier, Sieur de Villemure, a captain in the Carignan-Salières Regiment. The old village of Berthier was founded in 1727 and developed into a place of importance midway between Montreal and Trois Rivières. It became an active trading centre in the early years of the British régime and the heart of an enterprise which extended from the Great Lakes to the Old World. In 1770 Henry Joseph, who had been with the commissariat of troops at Sorel, crossed the river St. Lawrence and made his home in Berthier. From this place in the years that followed, he directed a trading company, with its own fleet of canoes and vessels, which carried settlers' supplies to distant points and brought back furs and other salable goods. At a distant trading post on Hudson Bay, John Jacob Astor was in the employ of Henry Joseph.

When the Seven Years War was at its height, a young officer, James Cuthbert, joined the 15th Regiment under Amherst at the siege of Louisbourg and later was with Wolfe at the Battle of the Plains of Abraham and the taking of Quebec. He was one of Wolfe's aides and was chosen by Murray, after Wolfe's death, to carry news of the victory to England.

After a short stay in England, he returned to Canada in 1763 and acted as a staff officer under Murray until 1765 when he retired from the army. He then made the momentous decision to cast in his lot with the settlers in the new land instead of returning to live in Scotland, the land of his ancestors.

On March 7th, 1765, James Cuthbert acquired the Seigniory of Berthier and also bought at different times the Seigniory of Du Sable and parts of the Seigniories of Dautry, Lanoraie and Maskinonge. He thus became an important landed proprietor in the country of his adoption.

James Cuthbert was made a member of Murray's Council in 1766 and served under

Sir Guy Carleton until the passing of the Quebec Act. He joined the Legislative Council in 1776. He was at Trois Rivières during the American invasion and his manor house at Berthier was set aflame by the enemy. Taken prisoner by the Americans and sent to Albany for a time, he was able to return later and rebuild his home.

In his *Histoire de Berthier*, Abbé Moreau states that when James Cuthbert obtained the Seigniory of Berthier he gave some land along the Chicot River to the French-Canadian settlers on condition that the parish then in process of formation should be named St. Cuthbert, in honour of a saint of his homeland from whom his family had taken its name. He also gave a bell to the new church in the parish. This bell was cast by Chapman and Mears of London in 1783 and bears a fitting inscription.

James Cuthbert was married three times. His first wife was Margaret, daughter of Sir Roderick Mackenzie and Janet Grant; his second wife was Catharine Cairns, daughter of David and Catharine Cairns of Montreal, whom he married in 1766; his third wife was Rebecca Cochrane, married in 1786.

By his second wife, for whom he had a deep affection, he had three sons and seven daughters. When she died in 1785, James Cuthbert decided to erect a chapel to perpetuate her memory and also to meet the religious needs of his Protestant retainers and others in Berthier. In due course the chapel was built and on one wall a marble plaque was placed which bore the following inscription:

> This chapel was erected for divine worship by the Honorable James Cuthbert, Esq., Lord of the Manor of Berthier, Lanoraie, Danby, New York,* Maskinonge, and the first built since the conquest of New France, 1760, and in memory of Catharine Cuthbert, his spouse, who died March the 7th, 1785, aged 40 years, mother of three sons and seven daughters, nineteen years married. Caroline, one of her daughters, is interred in the west end of this chapel, near her mother. She was a good wife, a tender mother. Her death was much lamented by her family and acquaintances. Anno Domini, 1786.

True to the tradition of his native land, James Cuthbert gave his chapel the name of the patron saint of Scotland, St. Andrew.

The chapel is of solid stone construction, 38 by 25 feet, with walls two feet thick. The roof slopes steeply and at the west end is surmounted by a belfry, topped by a lantern with eight openings and then a graceful spire. For many years a bell hung in the belfry but the second James Cuthbert, son of the builder, who had become a Roman Catholic, gave the bell of St. Andrew's chapel to the church at Ile du Pas. There were three small windows on each side, with a door facing south. When some repairs were made to the chapel later, the windows were greatly enlarged.

In an interesting article on the Cuthberts of Berthier, by David R. McCord, which appeared in the *Dominion Illustrated* for August 1st, 1891, there is a description of the interior of the building. This is cited here as the chapel had been completely dismantled before the writer of this article first saw it. "In the middle of the opposite (east) end was a very tastefully and neatly executed pulpit, surmounted by a canopy or covering and ascended by a straight staircase. There were no pews. The members of the family and other worshippers of position occupied the floor of the chapel in front of the pulpit, seated on chairs. An elevated gallery, about ten feet wide, at the other end, was devoted to the servants. There were no permanent steps to ascend, a movable set of steps being used. The family burial place was under this gallery, the interments being made with the heads of the deceased to the wall of the church. There was no vault properly speaking, the whole structure served as such."

The roadside marker placed by the Historic Monuments Commission of the Province of Quebec.

J. W. Michaud

*The names Danby and New York were formerly applied to parts of the Cuthbert Seigniory.

The south wall of the chapel, showing the location of the tablet which was shattered a few years ago when the building was struck by lightning. Fortunately the inscription has been preserved.
E. G. Woodley

It is known that a number of members of the Cuthbert family were buried in this chapel. In addition to Catharine Cuthbert and her daughter, several other Cuthberts, including Alexander, son of James Cuthbert, and some of the Antrobus and Forneret families, linked with the Cuthberts by marriage, were interred here.

For over a century little was done to preserve the chapel, but it was so well built that it stood firmly against the rigours of the Canadian climate. In 1928, some Montreal people, including the late Hugh Mackay, became interested in the historic chapel. Some necessary repairs were made and the roof renewed. Then the chapel was forgotten again and suffered severely in the succeeding years. When the writer first saw it a few years ago, it was in a deplorable condition. The fence surrounding the lot had been broken down and cattle had forced their way into the building by displacing stones beneath one of the low windows. Shutters had been removed and there was no woodwork left within. Almost complete dissolution seemed imminent. Then a fortunate thing happened.

Representations were made to the Historic Monuments Commission of the Province of Quebec and the historic significance of the chapel was stressed. In April, 1950, the Commission responded by making a grant towards saving the old building. The work of restoration was entrusted to the writer, in collaboration with Mr. P. Roy Wilson, the well-known Montreal architect. After a careful examination of the structure, a contractor was engaged to do the necessary repair work. He found the walls in poor condition, but by the extensive use of cement, and by constructing a retaining wall at the east end, was able to save the building for some years to come. Shutters were made and placed on the windows and the door was strengthened. A wooden plaque containing the original Cuthbert inscription was fastened to the door, for the information of visitors. Funds were insufficient to restore the interior of the building.

So the little chapel still stands as a reminder of other days, a link with eighteenth century Canada and with an historic Scottish family, many of whose members were buried within its walls.

The Cuthbert Chapel viewed from the south. E. G. Woodley

EDITOR'S NOTE-BOOK

George H. T. Kimble is Director of The American Geographical Society. He is known to Canadians for his writings and for establishing (and heading for five years) the geography department of McGill University. Dr. Kimble was in Africa last year. — Donald Kerr is assistant professor in the department of geography at the University of Toronto. During the war he was an R.C.A.F. meteorological officer on the Pacific Coast. Dr. Kerr has studied at the Universities of British Columbia, Toronto, and California and has made a special study of the climatology of British Columbia. — Kees Van Hoek, free-lance writer, was born in the Netherlands and went to England and the United States as a newspaper correspondent. He now makes his home in Ireland but travels extensively, writing and lecturing. — Edward C. Woodley studied at the University of Leyden in Holland after graduating from McGill. As an educationist he spent some time in India and the Near East before returning to the Quebec Department of Education. Mr. Woodley is the author of several books about French Canada, including *The Province of Quebec Through Four Centuries* and *Old Quebec Trails and Homes.*

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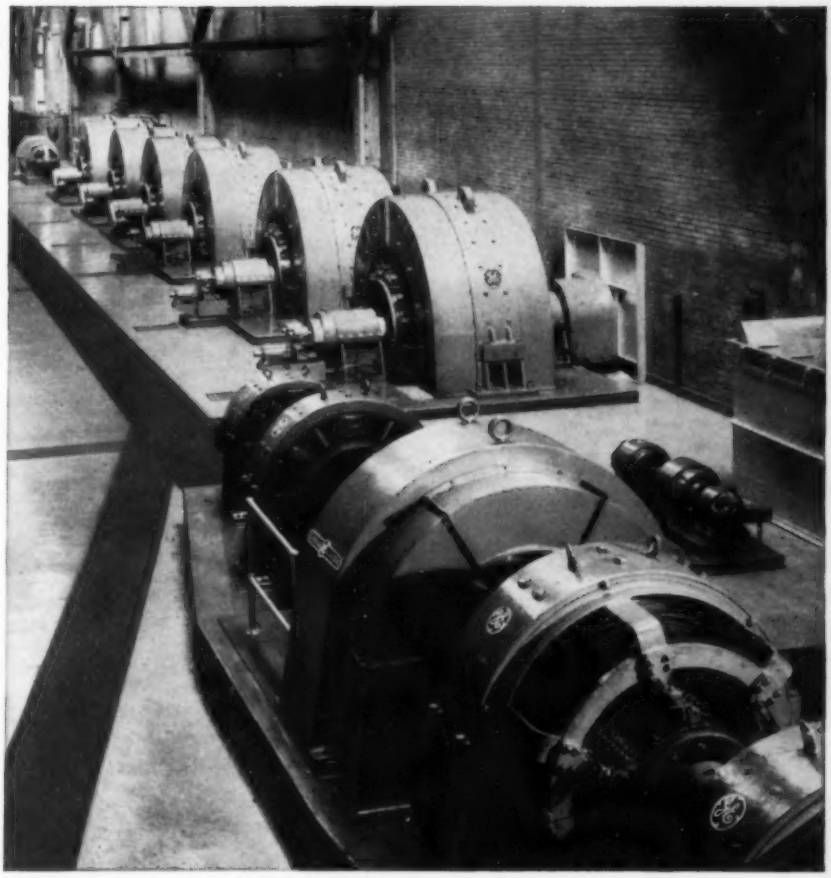

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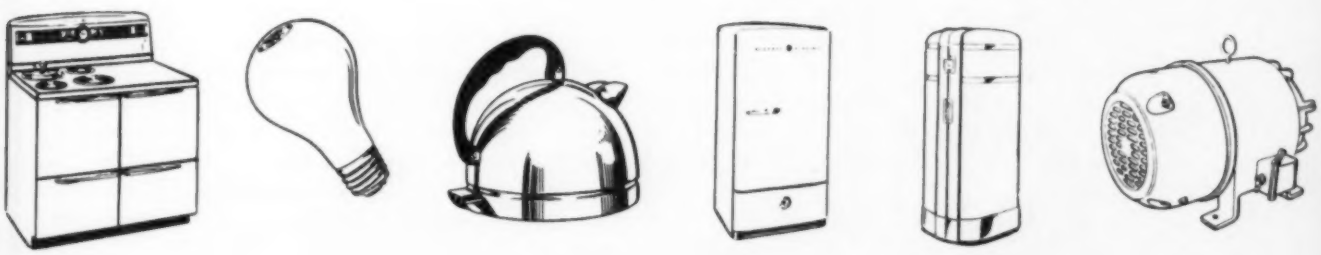

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AMONGST THE NEW BOOKS

Relational Patterns of Kampala, Uganda

by Edwin S. Munger

(The University of Chicago, $2.00)

This is one of a series of Research Papers issued by the Department of Geography of the University of Chicago and is the result of a stay of nine months in the town of Kampala with a population of 36,500 on the north shore of Lake Victoria Nyanza. Here the author, Dr. Munger, and his wife made a detailed study of the area with the help of native assistants, devoting his attention, not to the conventional history, physiography, climate, and ethnography but rather to the relationships of Kampala with the surrounding country, with other towns and villages, and with other larger geographical areas in Africa with emphasis on the advance of modern technology and Westernization of thought and daily life.

In itself, it is a fine piece of work and may well serve to determine whether such detailed studies lead to any very concrete results. The author fully recognizes the dangers of allowing new-drawn political frontiers to cut through ethnographic areas and in discussing his "Viewpoint" reminds us that political expedience has often been allowed to create ethnic anomalies which can hardly fail to become sources of friction and difficulty in later years.

There are many maps and diagrams, many illustrations. Here it is that the book as a whole proves something of a disappointment. In an effort to produce it as cheaply as possible, the maps have been so reduced in size as to make them difficult to decipher even with a reading glass; the diagrams are so complex as to require a full familiarity with the facts presented before they can be understood—in other words they conceal information rather than reveal it; and the photographs have been reproduced by a process which so softens and blurs them as to lose most of the detail which, quite obviously, was originally there.

This is by no means the only instance I have encountered of a fine piece of field work being much lessened in value, if not entirely vitiated, by an attempt to save a few dollars in printing. Why spend thousands of dollars on field work, to say nothing of the time and energies of a highly competent scientist, and then diminish to a dangerous degree the usefulness of his work? Apparently the risk of losing a sheep for a ha'porth of tar has not yet vanished. DOUGLAS LEECHMAN

* * *

Up Medonte Way

by Kenneth McNeill Wells

Illustrated by Lucille Oille

(J. M. Dent & Sons (Canada), Toronto, $4.50)

An additional volume has been added to the Owl Pen saga, by Kenneth McNeill Wells and illustrated by his wife, Lucille Oille (Lucy).

The latest annals take you back to the mixed farm project of the Wells couple in Medonte Township, near Orillia, Ontario. With Kenneth, you take trips into snowpiles and up trees. You share his utter discomfort one wet night when he swings pendulum fashion from the branch of a high tree, balanced by the sack of unhappy live chickens he has rescued from higher up. You find yourself reliving the adventures of the old-timer, Tom. Attending porcine obstetrics and meeting bees, field mice and cats, you enter into the intimate family life of the various strata of society that squeak, meow, bleat or buzz on the Wells' farm, from the matriarch of the goat tribe to Petunia, the skunk personality.

Up Medonte Way provides an excellent supply of snacks for the armchair wanderer who has that little corner in his mind where he nurtures the idea of one day finding a small place in the country to which he can escape and get away from it all. The Wells did this and, apparently, by Pen and pen, Kenneth Wells is making a "go" of it.

Perhaps a little of the stardust has rubbed off the Owl Pen over the years. There are moments when you wonder if Kenneth is still as dewy-eyed over some of the physical drawbacks, but then he awakens to find Spring in the air and you know that he and Lucy are still bound to their Paradise.

Perhaps Mr. Wells uses and re-uses too many manufactured synonyms for the verb "to say". "Whirpled" "whickered" "yammered" don't wear well after much usage and, after all, it's difficult to see how anyone can whirple a sibilant.

However, the book is an entertaining antidote for the tired office worker and no guest room is complete unless equipped with a copy, good for five hours of pleasant, relaxing reading. I. MAISON

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